

THE FAUNA OF BRITISH INDIA,

INCLUDING

CEYLON AND BURMA.

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COLEOPTERA.

CARABIDÆ.

VOL. II.—HARPALINÆ—I.

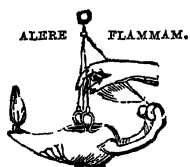
BY

H. E. ANDREWES.

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AUTHOR'S PREFACE.

SIX years have elapsed since the publication of my first volume on the CARABIDÆ of India, and, as this second volume follows on the same lines, there is little to add here by way of introduction. I have once more to thank the same friends and museums for assistance in the preparation of my work, and there are several new names to add to the list, chiefly in connexion with the three recent expeditions to the Karakorum Mountains, viz., those of Dr. G. Evelyn Hutchinson of Yale University, Mr. J. B. Corporaal of the Amsterdam Museum, Dr. A. Gridelli of the Trieste Museum, Dr. B. Parisi of the Milan Museum, and Dr. L. Caporiacco of the Zoological Institute, Florence.

The figures in the coloured Plates I to III were painted by Miss Olive F. Tassart, and nearly all the text-figures in the genera *Bembidion* and *Tachys* are due to Miss B. Hopkins; to these artists I offer my sincere thanks for their valuable help. Coloured Plate IV has been prepared from the two first plates in my work on the CARABIDÆ in Mr. Guy Babault's 'Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914,' and I am grateful to him for permission to make use of the figures required for this volume. I am also much indebted to Dr. R. Jeannel, who has entrusted me with a number of the drawings which illustrated his "Monographie des Trechinæ" (Abeille, xxxii-xxxv, 1926-30), and allowed me to reproduce them here. In addition I must thank, (i) Dr. Bolivar y Peltain of the Madrid Museum for permission to introduce five drawings (text-figs. 1 to 3, 35, and 36) from a paper of mine which

appeared in vol. iii of 'Eos,' 1927 ; (ii) the editors of the 'Entomologists' Monthly Magazine' for allowing me to make use of some of the figures in the plate which accompanied my "Notes on Oriental Carabidæ—VII, 1925," and which appear here on Plate V ; (iii) Dr. Gridelli for the photograph of *Bembidion ajmonis*, which appeared in Dr. F. Netolitzky's paper on the Bembidiini of the Italian Karakorum Expedition, and which is reproduced here as text-fig. 22 ; and (iv) the editors of 'Indian Forest Records' for allowing me to make use of the figure of *Tachys salemus* (text-fig. 44).

I have, further, to express my obligation to the editor, Lt.-Col. R. B. Seymour Sewell, F.R.S., for the careful way in which he has been through the proofs and detected various discrepancies and inaccuracies which might otherwise have escaped notice.

The Glossary of Technical Terms which appeared in my first volume has, for convenience, been reproduced here, and, as before, a folding-map of India, Ceylon and Burma appears at the end of the volume. For the spelling of the names of the localities mentioned the Indian Postal Guide has once more been taken as the standard of orthography.

H. E. ANDREWES.

September 1935.

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GLOSSARY OF TECHNICAL TERMS.

(Names of the parts of the body explained in the diagrams and in the text of the Introduction to Vol. I are not included here.)

♂ indicates the male, ♀ the female.

Acicular, having a sharp point like a needle.

Acuminate, terminating in a point.

Adnate, closely attached to (used of the *paraglossæ*).

Aedeagus, the intromittent organ of the male.

Aeneous, brassy.

Alutaceous, with a surface resembling that of soft leather.

Anal, referring (in insects) to the apex of the abdomen.

Apex, that part of the body, or of a limb or appendage of the body, which is most remote from an imaginary line separating the prothorax and hind body.

Appendage, organ attached to the body externally.

Apterous, without wings.

Arcuate, bent like a bow.

Articulation, a joint.

Asperate, rough.

Attenuated, diminished gradually.

Base, that part of the body, or of a limb or appendage of the body, which is nearest to an imaginary line separating the prothorax and hind body.

Bicuspid, with two cusps.

Bifid, cleft into two.

Border, an edge or rim, raised a little above the adjoining surface.

Canaliculate, with one or more channels.

Carina, a keel or narrow raised line.

Catenulate, in the form of a chain (used of the primary intervals of *Carabus*, etc.).

Cerci, the two appendages on the tenth abdominal segment (larvæ).

Chitin, the substance of which the horny integument of Coleoptera and other insects is chiefly composed.

Ciliate, fringed with a row of more or less parallel hairs.

- Clavate*, terminating in a club.
Compressed, flattened as if by lateral pressure.
Concolorous, of uniform colour.
Condyle, the rounded process at the end of a joint, moving in a socket.
Confluent, running into one another.
Connate, soldered together.
Constricted, contracted as if by pressure from all sides.
Contiguous, adjoining.
Cordate, heart-shaped.
Coriaceous, with a surface like that of leather.
Corneus, horny.
Costa, a rib or raised line, not so narrow or sharp as a *carina*.
Cotylod cavities, the sockets in which the coxæ move.
Crenate, *Crenulate*, with a notched edge.
Cusp, a projecting point.
Cyaneous, of a dark blue colour.
Cyathiform, in the form of a wide-mouthed cup (e. g., the prothorax in *Siagona*).
Declivous, sloping downwards.
Decurrent, extending downwards.
Deflexed, bent downwards or aside.
Dehiscent, gaping apart.
Dentate, toothed.
Denticulate, furnished with small teeth.
Depressed, flattened as if by vertical pressure.
Digitations, the finger-like processes on the tibia of the *Scaritini*.
Disk, the central portion.
Distal, away from the centre of the body or point of attachment.
Edentate, without teeth.
Emarginate, notched or with the margin as it were removed in the form of a segment of a circle.
Epicranium (*Epicranial*), the dorsal region of head behind clypeus (larvæ).
Eusternum, the anterior of the two main thoracic sternites (larvæ).
Explanate, flattened out.
Extrovert, turn inside out.
Facets, the lenses or divisions of the eye.
Facial carina, *Facial sulcus*, the carina and the sulcus on each side of the head in the subgroup *Olvinides*.
Facies, general aspect of a species, group, etc.
Fascia, a broad transverse band.
Ferruginous, rust-red.
Filiform, thread-like.
Flavous, yellowish.
Fovea, an impression, larger than a puncture, frequently rounded.
Frontal plate, the convex part of the head between clypeus and eye in the subgroup *Olvinides*.

Fulvous, of a tawny yellow colour.

Fuscous, very dark brown, almost black.

Fusiform, spindle-shaped, tapering at both ends.

Geniculate, elbowed or abruptly bent (applied to the antennæ, when the first joint, or scape, is much longer than the others).

Glabrous, smooth, hairless, and without evident sculpture.

Granulate, covered with small round elevations (granules).

Gula, the throat or submentum, that part of the head immediately behind the mentum and buccal fissure.

Hirsute, furnished with long and frequently erect hairs.

Humeral, relating to the shoulder.

Humeral ridge, a short raised line crossing the shoulder obliquely (*Siagonini*).

Hypostoma, lower region of head below the mouth (larvæ).

Imbricate, overlapping one another, like the tiles of a roof (e. g., the scale-like formation on the elytra in the genus *Calosoma*).

Impunctate, without puncturation.

Insertion, point of attachment (especially of the antennæ).

Instar, a stage in metamorphosis between two moults.

Interstices, a term used by some authors with the meaning here attributed to *intervals*.

Intervals, the spaces between the striæ or rows of punctures on the elytra; these are numbered from the suture outwards, the first (sometimes called the sutural interval) being that lying between the suture and the first stria.

Iridescent, exhibiting colours, like those of the rainbow, changing in different lights.

Joint, a word properly meaning an articulation, but commonly (and here) used for the various segments into which some appendages of the body are divided, e. g., the palpi, antennæ, and tarsi.

Lateral grooves, deep longitudinal furrows on each side of the prothorax (*Siagonini*).

Lateral ridges, carinæ running along the sides of the head (*Siagonini*).

Maculate, spotted.

Median, central.

Membranous, of the consistency of parchment.

Mental, referring to the mentum.

Mesolabrum, median lobe of the labrum (larvæ).

Meso-, see *Pro-*.

Meta-, see *Pro-*.

Microsculpture, the minute structure of the integument.

Moniliform, like a string of beads (usually applied to the antennæ).

Mucronate, terminating in a *mucro*, or sharp spine.

Notum, dorsal aspect of a segment of the body. Hence *pro-*, *meso-*, and *metanotum*, referring to the three thoracic segments.

Obsolete, almost effaced.

Ocellate, furnished with round spots, surrounded by a ring of a darker colour.

Ocelli, simple, as opposed to faceted or compound eyes.

Orbital, relating to the upper margin of the eye.

Oval, elliptical, equally pointed at the two ends.

Ovate, egg-shaped, more pointed at one end than at the other.

Pectinate, toothed like a comb.

Pedunculate, having a *peduncle*, or supporting piece, joining one part or organ to another, e. g., the produced part of the mesothorax in the *Scaritini* and *Stagonini*, which fits into the base of the prothorax.

Piceous, of the colour of pitch, very dark brown.

Pilose, *Piliferous*, *Piligerous*, bearing one hair, or a number of hairs.

Pleuron, lateral region of the body, connecting tergum and sternum.

Plicate, furnished with a fold or folds (*plica*).

Pores, large, isolated punctures.

Porrect, projecting forwards.

Primary, a term applied to the three principal intervals, which are often catenulate, in the genera *Carabus* and *Calosoma*. An interval or the central one of three intervals lying between two primaries is called a *secondary* interval; one placed between a primary and a secondary is known as a *tertiary* interval. The term *quaternary* interval is sometimes given to rows of minute granules lying between the other intervals.

Pro-, *Meso-*, and *Meta-* refer to the first, second, and third segments of the thorax or organs connected with them, e. g., *prosternum*, *proepisternum*, *proepimeron*, *procoxa*, *protrochanter*, *profemur*, *protibia*, and *protarsus*. Similarly, *mesosternum* etc. and *metasternum* etc. (The term *metatarsus* has been applied to the first joint only of the tarsi of the hind legs, but is here used of the whole tarsus.)

Process, a projecting part, outgrowth.

Produced, extended, continued.

Protelson, a small region in front of the telson.

Proximal, situated towards the centre of the body, or point of attachment.

Pubescent, furnished with a clothing of soft hairs.

Puncta accessoria, minute granules on the front of the ventral region (larvæ).

Punctate-striate, bearing lines of punctures placed in narrow grooves.

Puncture, an impressed point, usually round.

Quadrangle, more or less square.

Quaternary, see *Primary*.

Reflexed, bent upwards.

Reticulate, covered with a network of very fine striæ, which form meshes of varied shape.

Rufous, reddish.

Rugose, with a rough surface.

Scape, a term applied to the first antennal joint, when unusually developed.

Sclerite, local area of chitination of the cuticle.

Scrobe, the wide groove on the outer side of the mandibles (*Carabidæ*).

Scutellary, near the scutellum.

Secondary, see *Primary*.

Securiform, hatchet-shaped.

Segments, the divisions of the insect body (here applied chiefly to the venter).

Serrate, with teeth like a saw.

Seta, a stiff hair.

Setose, *setiferous*, *setigerous*, bearing a seta or setæ.

Shagreened, microscopically roughened and producing a dull effect.

Sinuate, wave-like, curved first in one direction and then in another.

Sinus, a cavity or indentation (used chiefly of the mentum).

Spatulate, furnished with a broad racket-shaped expansion.

Spur, a stout spine (generally at or near the apex of the tibia).

Sternellum (*sternellar*), the posterior of the two main thoracic sternites.

Sternites, sclerites composing the *sternum* or ventral region of the body.

Stria, an impressed line.

Striate-punctate, bearing lines of punctures not placed in grooves.

Stridulation, a shrill noise, produced by friction between two hard surfaces.

Strigose, finely and irregularly scratched.

Striole, a term applied to (i) the short striæ frequently present on each side of the scutellum, (ii) the recurved stria near the apex of the elytra in the genera *Trechus* and *Tachys*.

Sub-, in composition, signifies almost, or slightly.

Submentum, see *Gula*.

Subocular ridge, a transverse ridge, with a groove in front of it, beneath the head and behind the eye (*Omophron*).

Subulate, terminating in a sharp point like an awl (chiefly used of the last joint of the palpi in the *Bembidiini*).

Sulcate, furrowed, or provided with one or more sulci, which are wider and deeper than *striæ*.

Supra-, in composition, signifies above (e.g., the *supraorbital setæ* on the head, the *supramaxillary plates* in the genus *Siagona*).

Suture, the line along which two edges meet (e.g., clypeus and labrum, or the elytra).

Tegmen, *tegmina*, sometimes used of the overhanging margins of the tergites (larvæ).

Telson, the supra-anal plate, an appendage of the tenth abdominal tergite, covering the anus (larvæ).

Tergites, sclerites composing the *tergum* or dorsal region of the body.

Tertiary, see *Primary*.

Testaceous, a clear brownish yellow, like the paler markings on tortoise-shell.

Tomentose, clothed with dense soft hairs.

Transverse, a word used with two significations, (i) wider than long, (ii) in a cross-wise direction.

Trapezoidal, in the form of an irregular, four-sided, rectilinear figure.

Truncate, ending abruptly, as if cut across in a straight line.

Tubercle, a small, abrupt elevation.

Tumid, swollen.

Umbilicate, a term used of a puncture with a slight central raised area.

Unicolorous, uniformly coloured.

Venter, the lower surface of the abdomen (in the *Carabinae* there are six segments, numbered from 1 (basal) to 6 (apical)).

Vermiculate, with irregular, sinuous markings or striae.

Vitta, a stripe, or longitudinal marking.

Wings, in addition to the normal use of this word for the organs of flight, it signifies in the subgroup *Clivinides* the lateral parts of the clypeus.

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Subfamily II. HARPALINÆ.

This is by far the largest of the subfamilies into which the CARABIDÆ are divided; it differs from the CARABINÆ, which were dealt with in the first volume of this series, in a very important character, namely, the complete separation of the mesocoxæ and mesepimera, the coxal cavities being entirely closed by the sterna. The classification presents many difficulties, and the scheme adopted here follows in the main that proposed by Ludwig Ganglbauer in his classical work 'Die Käfer von Mitteleuropa,' with such additions as are required by the inclusion of numerous Indian genera. It is impossible to estimate even approximately the number of species of CARABIDÆ inhabiting the Indian region, but it is evident that immense numbers still remain to be discovered; and this point is well illustrated by the fact that, whereas only a few years ago less than a dozen species of *Bembidion* were known from India, more than a hundred are enumerated here.

The volume contains eight groups, namely, the HEXAGONINI and all those (except the BRACHININI) characterized by the presence of a seta in the mandibular scrobe; some further groups might have been included, but there is a convenient break here to separate this volume from the next, which will therefore commence a new section of the subfamily.

Key to the Groups.

- | | |
|---|----------------------|
| 1 (64) Venter with six visible segments. | |
| 2 (3) Apex of maxillæ jointed, or at least functionally mobile; head subpentagonal, with largely developed genæ. | Hexagoniini, p. 5. |
| 3 (2) Apex of maxillæ not jointed or mobile. | |
| 4 (17) Mandibles with at least one seta in the scrobe. | |
| 5 (8) Head with a suborbital longitudinal ridge. | |
| 6 (7) Mandibles with several setæ in the scrobe, two supraorbital setæ, the ligula quadrisetose; body flat, pubescent, resembling that seen in the genus <i>Siagona</i> | Cymbionotini, p. 18. |
| 7 (6) Mandibles with a single seta in the scrobe and a single supraorbital seta, the ligula bisetose; body glabrous, tarsi pubescent | Melœnini, p. 26. |

- 8 (5) Head without a suborbital longitudinal ridge, though an oblique temporal ridge or suture is sometimes present.
- 9 (10) Prothorax without visible sutures, strongly contracted behind and attached to the hind body by a narrow prolongation of the mesothorax; palpi very long and slender, metacoxæ separated.....
- 10 (9) Prothorax with its propleura and episterna separated by visible sutures; metacoxæ contiguous.
- 11 (12) Head with one or three (sometimes four) supraorbital setæ; body pedunculate, the prothorax connected with the hind body by a mesothoracic prolongation, on which the scutellum is placed (in *Axonya* the prolongation is slight and the scutellum is visible between the elytra) ..
- 12 (11) Head with two supraorbital setæ; body not pedunculate.
- 13 (14) Ligula 8-setose at apex; head nearly always with very deep frontal furrows curving round behind the eyes; palpi pointed at apex, or, if with a narrow subulate apical joint, the penultimate joint of the maxillary palpi is glabrous
- 14 (15) Ligula bisetose at apex; the frontal furrows not very deep and not curving round behind the eyes.
- 15 (16) Apical joint of the palpi very short, subulate, the penultimate joint dilated and pubescent
- 16 (15) Apical joint of the palpi not subulate and of about the same length as the penultimate joint
- 17 (4) Mandibles without seta in the scrobe.
- 18 (19) Apical joint of the maxillary palpi attached excentrically to the penultimate joint; eyes prominent, neck usually constricted, upper surface more or less punctate and pubescent
- 19 (18) Apical joint of the maxillary palpi attached normally to the penultimate joint.
- 20 (21) Mandibles short and thick, emarginate or truncate at apex, clypeus more or less emarginate, often asymmetrically, generally exposing the basal membrane of the labrum.....
- 21 (20) Mandibles entire and moderately sharp at apex, basal membrane of the labrum not or rarely exposed.

Apotomini, p. 28.

Broscini, p. 32.

Trechini, p. 47.

Bembidiini, p. 80.

Pogonini, p. 307.

Panagæini *.

Leinini.

* This volume only goes as far as the POGONINI, but I thought it desirable to give here a classification of the whole subfamily.

- 22 (31) Head with one supraorbital seta on each side.
- 23 (30) Elytra completely covering the abdomen; ♂ profemora without any tubercle beneath.
- 24 (27) Outer part of the metacoxæ and first ventral segment not lying in the same plane; ♂ protarsi with four or no dilated joints.
- 25 (26) Maxillæ hooked and glabrous at apex; antennæ with the two basal joints glabrous **Harpalini.**
- 26 (25) Maxillæ not hooked and with a dense inner fringe of hairs to apex; antennæ with the three basal joints glabrous; mandibles thick and rugose, with rudimentary scrobes, the head deflexed **Idiomorphini.**
- 27 (24) Outer part of the metacoxæ and first ventral segment lying in the same plane; ♂ protarsi with three dilated joints.
- 28 (29) Marginal channel of the elytra normal, shallow or obsolete at apex; form rarely oval **Chlæniini.**
- 29 (28) Marginal channel of the elytra sulcate at apex; form oval **Oodini.**
- 30 (33) Elytra truncate at apex, leaving the abdomen partly exposed; ♂ profemora near the base with a tubercle beneath bearing a dense brush of hairs **Miscelini *.**
- 31 (22) Head with two supraorbital setæ on each side.
- 32 (63) Antennæ inserted immediately beneath the preocular ridges.
- 33 (42) Elytra completely covering the abdomen.
- 34 (35) Body pedunculate, prothorax globose, constricted behind to a narrow stalk, a hind lateral seta present and placed at some distance in front of the hind angles; ♂ protarsi with four dilated joints **Disphæricini.**
- 35 (34) Body not pedunculate, prothorax not globose, its upper surface quadrate or cordate.
- 36 (37) Elytra with stria 8 very deep throughout, close to margin in front, separated from it behind **Perigonini.**
- 37 (36) Elytra with stria 8 normally impressed and about equally distant from the margin throughout.

* This group, though closely related to the *LEBINTI*, is placed here as a matter of convenience. In the two Indian species of *Miscelus*, the only Indian genus in the group, there is only one supraorbital seta on each side, but in the New Guinea species, *M. luctuosus* Putz., and in the Malagasy genus *Antemerina* two setæ are present on each side.

- 38 (39) Penultimate joint of the labial palpi plurisetose on its inner margin **Amarini ***
- 39 (38) Penultimate joint of the labial palpi bisetose on its inner margin.
- 40 (41) Protibiæ powerful, dilated at apex, mentum with a bifid tooth, elytra usually with an inner plica visible on each side in a slight emargination near apex **Platysmatini *.**
- 41 (40) Protibiæ slender, hardly dilated at apex, mentum nearly always with a simple tooth, inner plica of the elytra wanting or, if present, not visible near apex **Agonini.**
- 42 (33) Elytra more or less truncate behind, leaving the abdomen partly exposed (sometimes rounded in the *ORTHOGONIINI*, but even then with the apical abdominal segment usually visible).
- 43 (50) Joint 1 of the antennæ scapiform.
- 44 (47) Antennæ slender, joint 1 about as long as the next three taken together.
- 45 (46) Neck about half as wide as the head, prothorax subcylindrical, the border obsolete or, if present, without a sharp edge, tarsal joint 4 bilobed .. **Dryptini.**
- 46 (45) Neck about a third as wide as the head, prothorax normally bordered, with a sharp edge, tarsal joint 4 not bilobed **Zuphiini.**
- 47 (44) Antennæ fairly stout, joint 1 not longer than the next two taken together.
- 48 (49) Elytra costate, with eight or nine narrow major costæ, and usually with a pair of minor costæ between each two adjoining major ones **Galeritini.**
- 49 (48) Elytra normally 9-striate, with moderately convex intervals **Physocrotaphini.**
- 50 (43) Joint 1 of the antennæ not scapiform.
- 51 (52) Head narrowed behind to a condyli-form neck; prothorax subcylindrical, with more or less obsolete lateral borders **Odacanthini.**
- 52 (51) Head not narrowed behind to a condyli-form neck.
- 53 (54) Labrum large, smooth, and semi-circular, practically concealing the mandibles; body hairy, appendages short and stout **Helluonini.**
- 54 (53) Labrum normal, more or less quadrate.
- 55 (56) Tibiæ serrate, protibiæ dilated at apex; prothorax without lateral setæ, tarsi with joint 4 emarginate and often bilobed, claws usually pectinate **Orthogoniini.**

* In very rare instances the number of supraorbital setæ in these two groups is abnormal.

- 56 (55) Tibiæ not serrate; prothorax nearly always with one lateral seta, and generally with two setæ.
- 57 (60) Metatibiæ furnished with long spurs, sometimes serrulate.
- 58 (59) Maxillæ produced above apex into an obtuse ciliate lobe..... **Tetragonoderini.**
- 59 (58) Maxillæ ending in a sharp slender hook without any ciliate lobe above it .. **Masoreini.**
- 60 (57) Metatibiæ not furnished with long spurs.
- 61 (62) Mentum supported at base by a projecting submentum **Lebiini.**
- 62 (61) Mentum not supported at base by a projecting submentum..... **Pentagoniciini.**
- 63 (32) Antennæ inserted far below the pre-ocular ridges, level with the lower margin of the eyes **Anthiini.**
- 64 (1) Venter with seven or eight visible segments; mandibles with a seta in the scrobe, elytra truncate and with a narrow membranous border at apex. **Brachinini.**

Group XI. HEXAGONIINI.

A small tribe containing only three genera, two of which occur in the Indian faunal region, the third being found in Madagascar. The chief distinguishing character, and one which differentiates the group from all other CARABIDÆ, is the presence of a mobile hook at the apex of the inner lobe of the maxillæ, but the joint between the two parts, though sometimes visible, is sometimes functional only. A similar form of maxilla is found in almost all the groups of the CICINDELIDÆ. The head is strongly contracted behind, with a more or less constricted neck, two supraorbital setæ on each side, the mandibles without any seta in the scrobe, the penultimate joint of the labial palpi glabrous, the first three joints of the antennæ glabrous; the prothorax has a groove on each side running parallel with the lateral channel, the elytra are nine-striate and entire at apex, the metacoxæ are contiguous, and the fourth tarsal joint is wide and bilobed.

Key to the Genera.

- 1 (2) Ligula dilated at apex and deeply cleft; prothorax cordate or hexagonal, a lateral sulcus on each side from apex to base, near and running more or less parallel with the marginal channel ... **HEXAGONIA**, p. 6.
- 2 (1) Ligula truncate or slightly emarginate at apex, never deeply cleft; prothorax more or less quadrate, a lateral sulcus on each side from apex to a point about a fourth or fifth from base, where it turns outwards and joins the marginal channel **DINOPELMA**, p. 15.

Genus **HEXAGONIA.**

Hexagonia Kirby, Trans. Linn. Soc. xiv, 1825, p. 563; Castelnau, Études Ent. 1834, p. 51; Schmidt-Goebel, Faun. Col. Birn. 1846, p. 49; Schaum, Berl. Ent. Zeitschr. 1863, pp. 72 and 433; van de Poll, Notes Leyd. Mus. xi, 1889, p. 247; Dupuis, Gen. Ins., Fasc. 147, Hexagoniinae, 1913, p. 2; Andrewes, Trans. Ent. Soc. Lond. 1923, p. 26.
Trigonodactyla Dejean, Spec. Gen. v, 1831, p. 288; Audouin et Brullé, Hist. Nat. Ins. iv, 1834, p. 227; G. Horn, Trans. Amer. Ent. Soc. ix, 1881, p. 146.

TYPE, *Hexagonia terminata* Kirby. (India, Burma, Laos, Java.)

Body winged, flat, and glabrous.

Head large, flat, more or less pentagonal, with a narrow deeply constricted neck; eyes moderately large and prominent, hardly separated from the buccal fissure, the hind supraorbital seta placed far back at some distance from the eye; genæ very large and conspicuous, often longer than the eye; clypeal suture deep, clypeus bisetose, labrum sexsetose, slightly emarginate in front; frontal sulci only moderately deep, often bounded on each side by an external ridge, which curves inwards behind; mandibles fairly long and stout, the right one slightly toothed, the left one edentate; ligula dilated at apex and so deeply emarginate that the sides project as two horns, each bearing a seta at apex, paraglossæ membranous, free, very narrow, extending well beyond the ligula; mentum rounded at sides, with a fairly deep emargination and an obtuse tooth, a small rounded fovea on each side of base, submentum with a single seta on each side; maxillæ with the outer lobe two-jointed, the inner one provided on its inner side with comparatively few bristles of unequal size, the apex bending sharply inwards in the form of a mobile hook (though a joint is not always apparent), which is setose on its outer side; palpi glabrous, the maxillaries with the last two joints nearly equal, the labials with the apical joint much shorter than the penultimate; antennæ pubescent from and including joint 4, hardly reaching beyond base of prothorax, joint 1 fairly long and stout, joint 2 very short, 2 and 3 with a few setæ at apex.

Prothorax hardly larger than head, cordate or hexagonal, the sides being sometimes rounded, sometimes angulate, a lateral sulcus on each side from base to apex, practically parallel with the margin, though widest at middle.

Elytra flat, with square shoulders and nearly parallel sides, border rounding the shoulder and generally angulate opposite interval 5, sometimes obsolete opposite interval 3 and with a slight ridge replacing it opposite intervals 1 and 2, an inner plica present; 9-striate, the striæ more or less punctate, sometimes fairly deep, interval 3 with three pores, 5 with

a single pore. Microsculpture wanting on the head and prothorax, but present on the elytra, the meshes, where visible, isodiametric, much more distinct on the apical than on the basal half, the outline of the meshes so ill-defined that the surface often appears to be minutely punctate.

Sternum: prosternal process unbordered; mesosternum deeply transversely sulcate, its apex subtriangular, notched at extremity; metasternum longitudinally sulcate, the process more or less bordered and fitting into the mesosternal notch, metepisterna long and narrow. *Venter*: segments each with a pair of setæ, apical segment with one seta on each side in the ♂, two (sometimes three) in the ♀. *Legs* rather short: tibiæ externally sulcate; tarsal joints short and wide, 1 to 3 diminishing in length, all—but especially 2 and 3—emarginate at apex, 4 deeply bilobed, 1 to 4 fringed with hairs and spongiöse beneath, each part of the claw-joint either smooth and normal, or wide at base, suddenly diminishing midway to less than a half of the width at base, and so leaving a projecting tooth at middle.

The comparative lengths of eye and gena given in the descriptions are those along outer margins, and do not include the angular extension of the former into the fovea behind the eye.

Range. South-East Asia, including Formosa and the Malay region, Madagascar, and Africa south of the Equator.

Specimens have been found in various Indian localities between the leaf-sheaths and stem of the plantain (*Musa*), but no biological facts are on record. Another habitat, according to van de Poll, is "the sheaths formed by dead leaves of the sugar-cane."

Key to the Species.

- 1 (12) Elytra not more than two-thirds longer than wide, evidently, if slightly, dilated behind, microsculpture generally forming distinct meshes, at least towards apex.
- 2 (5) Elytra ferruginous, with the apical two-fifths black; claws with a projecting tooth at middle.
- 3 (4) The fovea on each side behind the eye connected by a shallow groove with the postorbital pore; prothorax angulate at sides. Length 8-9 mm. *terminata*, Kirby, p. 8.
- 4 (3) The fovea on each side behind the eye not connected with the postorbital pore; prothorax rounded at sides. Length 7 mm. *apicalis*, Schm.-Goeb., [p. 10.]
- 5 (2) Elytra black.
- 6 (9) Prothorax angulate at sides; claws with a projecting tooth at middle.

- 7 (8) Eyes shorter than genæ; vertex impunctate; prothorax punctate only in the basal foveæ and lateral channels. Length 8-10.5 mm. [p. 10.
longithorax, Wied.,
- 8 (7) Eyes longer than genæ; vertex finely punctate; prothorax finely punctate, except in the middle of disk. Length 7-8 mm. *caurina*, sp. nov., p. 11.
- 9 (6) Prothorax rounded at sides; claws without a projecting tooth at middle.
- 10 (11) Head and prothorax black, the latter as long as wide, with gently rounded sides; elytral striæ moderately impressed and punctate. Length 10.5-12 mm. [p. 12.
nigrita, van de Poll,
- 11 (10) Head and prothorax brown-red, the latter evidently wider than long, with strongly rounded sides; elytral striæ and punctures very fine. Length 7-9 mm. [p. 13.
flautiaurici, Dupuis,
- 12 (1) Elytra more than twice as long as wide, with parallel sides, microsculpture very slight, hardly forming meshes; claws without projecting tooth. Length about 8 mm.
- 13 (14) The groove between eye and post-orbital pore (viewed from above) moderately deep; elytra ferruginous, with a piceous oval spot on apical half, the striæ only moderately impressed and finely punctate [p. 14.
uninotata, sp. nov.,
- 14 (13) The groove between eye and post-orbital pore (viewed from above) very deep; elytra ferruginous, with the apical third black, the striæ fairly deep and very clearly punctate [p. 15.
stenodes, sp. nov.,

242. *Hexagonia terminata*, Kirby. [Plate II, fig. 1.]

Hexagonia terminata Kirby*, Trans. Linn. Soc. xiv, 1825, p. 564; Brullé, in Audouin et Brullé, Hist. Nat. Ins. iv, 1834, p. 227; Schmidt-Goebel, Faun. Col. Birm. 1846, p. 50; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 132.

Hexagonia kirbyi Schmidt-Goebel*, Faun. Col. Birm. 1846, p. 50, t. 2, f. 2; van de Poll, Notes Leyd. Mus. xi, 1889, p. 250; Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 366; Andrewes, Trans. Ent. Soc. Lond. 1923, p. 25.

Hexagonia andamanensis Pouillaude*, Insecta, iv, 1914, p. 165, ff. 4 and 5; Andrewes, Ann. Mag. Nat. Hist. (9) xiv, 1924, p. 591.

Colour ferruginous, the underside sometimes piceous, head and prothorax usually piceous or black, joints 4 to 11 of antennæ fuscous, apical two-fifths of elytra black, the black extending a little forward along sides and suture.

Head large, pentagonal, longer than wide; frontal impressions wide and shallow, bounded on each side by a slight

ridge, hardly extending beyond mid-eye level, a few fine punctures within them ; genæ as long as eyes, curving inwards very sharply to neck ; the deep lateral sulcus, which runs on each side between the eye and the front supraorbital, extending back in a straight line to a point a little behind the eye and ending in a fovea, then continuing as a shallow groove to the hind supraorbital pore ; antennæ just reaching base of elytron. *Prothorax* moderately convex, subhexagonal, slightly wider than head and slightly wider than long, base gently arcuate, slightly narrower than apex, widest a little before middle, where the sides are obtusely angulate, front angles rounded, sides practically straight both in front of and behind the angle, sinuate at a sixth from and falling vertically on base, so that the hind angles are right and fairly sharp, a seta at the lateral angle but none visible at the basal angle ; median line deep, basal foveæ fairly deep, diverging in front and extending to the front margin on each side as a faint impressed line, lateral channels bounded inwardly by a fairly stout ridge ; surface irregularly and finely punctate, nearly smooth on disk, basal area rather more coarsely punctate. *Elytra* rather flat, a little less than twice as wide as prothorax, nearly two-thirds longer than wide, sides slightly dilated behind, basal border entire, forming a very obtuse angle opposite interval 5, margin faintly sinuate on each side before apex ; striæ moderately impressed and finely crenulate, a little deeper towards apex, scutellary stria long and rather deep, 1 and 2 arising in an umbilicate pore ; intervals rather flat, more convex at sides and near apex, 8 and 9 narrower than the rest, 3 with three pores, the front one not far from base, adjoining stria 3, the second and third on the interval though nearer stria 2 than stria 3, at three-fifths and five-sixths respectively, 5 with a single pore near stria 5 at about three-fourths. Microsculpture visible throughout, but distinct on the apical half only. *Sternum* : prosternum coarsely and to some extent confluent punctate ; metasternum with a few punctures at sides. *Legs* : claws with a projecting tooth at middle.

Length, 8–9 mm.

Distribution. BOMBAY : North Kanara (*T. R. D. Bell*). UNITED PROVINCES : Haldwani (*H. G. Champion*) ; Dehra Dun. BENGAL : Munshiganj. BURMA : Tharrawaddy (*G. Q. Corbett* and *H. G. Champion*) ; Zigon division (*H. G. Champion*). ANDAMAN ISLANDS. LAOS. JAVA.

Type in the British Museum ; that of *kirbyi* in the Prague Museum ; that of *andamanensis* in Mr. R. Oberthür's collection.

Judging by the way in which the specimen was mounted Kirby thought that the type came from the Hardwicke collection, and in that case it was probably found in Kumaon.

Schmidt-Goebel says that the type of *kirbyi* came "perhaps from Darjeeling."

In the Atlas to his 'Genera des Coléoptères' (1854, t. 3, f. 1) Lacordaire gives a figure alleged to be *Trigonodactyla terminata* Kirby, but in the "Explication des planches" it appears correctly as *T. terminata* Dejean (= *terminalis* Mun. Cat.), an African species.

243. *Hexagonia apicalis*, Schm.-Goeb.

Hexagonia apicalis Schmidt-Goebel*, Faun. Col. Birm. 1846, p. 51; Dupuis, Gen. Ins., Fasc. 147, Hexagoniinae, 1913, t. f. 11; Andrewes, Trans. Ent. Soc. Lond. 1923, p. 26.

Rather smaller than *terminata* but coloured in almost exactly the same way. *Head* with frontal impressions rather shallower, the foveæ behind the eyes much smaller, not connected with the postorbital pores, the antennæ shorter, not reaching beyond the basal fourth of the prothorax. *Prothorax* rounded at sides, the lateral furrows shallower, the ridges bounding them slighter, the median line wider, more uneven at sides; surface much more closely punctate, especially near the front angles and in the basal foveæ. *Elytra* flatter, with rather deeper and more evidently punctate striæ, the intervals more convex, the pores on 3 and 5 identical, but the hind pore on the left elytron is wanting on interval 3. In the rest of its characters similar to *terminata*.

Length, 7 mm.

Distribution. Cossipore or Darjeeling (*J. W. Helfer*). Schmidt-Goebel says that the specimen probably came from Darjeeling, but that both it and the example of *kirbyi* (= *terminata*) may have come from Cossipore in the vicinity of Calcutta.

Type in the Prague Museum. This is the only example seen.

244. *Hexagonia longithorax*, Wied.

Lebia longithorax Wiedemann*, Zool. Mag. ii, 1, 1823, p. 58.

Hexagonia brunnea Chaudoir*, Bull. Mosc. 1861, i, p. 531; Schaum, Berl. Ent. Zeitschr. 1863, p. 433.

Hexagonia longithorax Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 366; Andrewes, Trans. Ent. Soc. Lond. 1921, p. 172.

Colour black, shiny; buccal organs and legs darker or lighter ferruginous; antennæ, metasternum, and venter brown or piceous.

Head pentagonal, longer than wide; frontal impressions wide and shallow, bounded on each side externally by a slight ridge, reaching mid-eye level, a few fine punctures within them behind; genæ half as long again as eyes, curving backwards less sharply than in *terminata*; the fovea behind the

eye connected, as in that species, with the postorbital pore ; antennæ extending a little beyond base of elytra. *Prothorax* moderately convex, subhexagonal, barely wider than head and only slightly wider than long, widest a little before middle, base truncate, sides obtusely angulate at the widest point, in front of which they curve round to neck, the front angles almost rounded away, straight behind to a sixth from base, thence sinuate and falling vertically on base, the hind angles right and sharp, a seta on each side at the lateral angle, but none visible behind ; median line deep, basal foveæ deep, diverging in front, but hardly extending forward beyond middle ; lateral channels bounded at least at middle by an inner ridge ; surface with some fine cross-striation, basal area and lateral channels behind finely punctate. *Elytra* rather flat, twice as wide as prothorax, a little over a half longer than wide, slightly dilated behind ; basal border entire, forming an obtuse angle opposite stria 4, margin faintly sinuate on each side before apex ; striæ deep and clearly punctate, at least on basal half, a slight umbilicate pore sometimes visible at the origin of 1 and 2, scutellary striole moderately developed ; intervals moderately convex, 7 to 9 narrower than the inner intervals ; dorsal pores on 3 and 5 and microsculpture as in *terminata*. *Sternum* : puncturation of the prosternum and metasternum as in *terminata*. *Legs* : claws with a projecting tooth.

Length, 8–10.5 mm.

Distribution. UNITED PROVINCES : Dehra Dun ; Haldwani district, Gauniaran (*H. G. Champion*). BENGAL. ASSAM-TIBET frontier : Abor Expedition, Rotung, Upper Rotung, and below Damda (*S. W. Kemp*). BURMA : Palon and Malewoon (*L. Fea*).

Type in the Zoological Museum of the University at Copenhagen, that of *brunnea* in Mr. René Oberthür's collection.

The amount of puncturation at the base of the prothorax is variable, and sometimes it is confined to the foveæ. In one of the specimens from Haldwani there are four dorsal pores on interval 3 ; this appears to be an aberration.

245. *Hexagonia caurina*, sp. nov.

Very similar in appearance to *longithorax* Wied., coloured in the same way, but slightly smaller. *Head* of rather different shape ; the eyes a little longer than the genæ, which curve round more sharply behind, as in *terminata* ; the frontal impressions and vertex finely though not very closely punctate. *Prothorax* similar in shape, but with only a slight ridge bounding the lateral channels on their inner side ; the surface much more closely punctate, with only a small impunctate area on

middle of disk. *Elytra* similar but a little shorter; the striae slightly shallower, especially on apical half, the punctures in them much finer. Microsculpture, puncturation of the sterna, and claws similar.

Length, 7–8 mm.

Distribution. UNITED PROVINCES: Haldwani division, Kaldbunga (*H. G. Champion*). LAOS.

Type in the British Museum.

The Haldwani specimens have a label attached which reads "on or in banana plants," and Mr. Champion informs me that they were found "between leaf-sheaths of *Musa*, mostly where more or less dead or rotten." This is the habitat of a specialized fauna, including flat species of Staphylinidæ etc.

246. *Hexagonia nigrita*, van de Poll.

Hexagonia nigrita van de Poll, Notes Leyd. Mus. xi, 1889, p. 247; Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 367; Dupuis, Ann. Soc. Ent. Belg. 1913, p. 263; Andrewes, Tijdschr. Ent. lxxii, 1929, p. 305.

Colour black, shiny; palpi ferruginous, tarsi piceous.

Head pentagonal, longer than wide; frontal impressions wide and moderately deep, reaching mid-eye level; genæ longer than eyes, curving very gently backwards and then suddenly contracted to neck; the fovea behind the eye connected with the postorbital pore by a fairly deep furrow, and the two pores sometimes united across the vertex by a vague, irregular, arcuate impression; antennæ extending a little beyond base of elytra; surface impunctate. *Prothorax* convex, cordate, as wide as head and as long as wide, widest at two-fifths from apex, base truncate, front angles rounded away, sides rather gently rounded and sinuate near base, hind angles right and sharp, a seta on each side at the widest point, none at base; median line very deep but not reaching extremities, a slight transverse sulcus bordering the base; basal foveæ deep, close to the angles, arcuate (convex inwards), but hardly reaching middle; lateral channels bounded by a fine inner costa; surface impunctate, but with some vague cross-striation. *Elytra* flat, twice as wide as prothorax, two-thirds longer than wide, slightly dilated behind, basal border angulate opposite interval 5, terminating at stria 3, margin slightly sinuate on each side before apex; striae moderately impressed and clearly punctate on basal half, shallower behind, but deeper again close to apex, 1, 2, and the moderately long scutellary striae united at base, where an umbilicate pore is sometimes visible; intervals slightly convex; dorsal pores on 3 and 5 and microsculpture as in *terminata*. *Sternum*:

prosternum punctate, but not at sides, and sometimes impunctate along median line; metasternum slightly punctate at sides. *Legs*: claws simple, i. e., without any projecting tooth at middle.

Length, 10.5–12 mm.

Distribution. BURMA: Karen Hills (*L. Fea*). LAOS. JAVA. SUMATRA. FORMOSA.

Type not traced.

247. *Hexagonia fleutiauxi*, *Dupuis*.

Hexagonia fleutiauxi Dupuis*, Ann. Soc. Ent. Belg. 1913, p. 325.

Colour black, shiny; palpi ferruginous, joints 1 and 2 of antennæ, head, and prothorax brown-red; underside and tarsi more or less piceous.

Head pentagonal; frontal impressions as in *longithorax*, but a little shallower and extending rather beyond mid-eye level; genæ about as long as eyes, curving sharply back to neck, as in *terminata*; a fairly deep groove connecting the foveæ behind the eye with the postorbital pore; antennæ barely reaching beyond base of elytra; surface impunctate. *Prothorax* convex, cordate, barely wider than head, but evidently though slightly wider than long, base truncate at middle, its sides very oblique close to the angles, front angles almost rounded away, sides strongly rounded, sinuate close to the hind angles, which, owing to the obliquity of the sides of base, are very obtuse, a seta on each side at the widest point but none visible behind; median line deep, basal foveæ short but deep, close to the angles, rugose-punctate; surface otherwise smooth. *Elytra* moderately convex, a little more than a half wider than prothorax, nearly two-thirds longer than wide, very slightly dilated behind, basal border entire, forming a slight angle opposite interval 5; striæ fine and finely punctate, the punctures clearly visible in front only, 1, 2, and the scutellary striole arising in an umbilicate pore; intervals nearly flat, 8 and 9 narrower and more convex than the inner intervals; dorsal pores on 3 and 5 as in *terminata*. Microsculpture of the elytra isodiametric and fairly distinct, even in front. Sterna and claws as in *nigrita*.

Length, 7–9 mm.

Distribution. BENGAL: Gopaldhara (*H. Stevens*). ASSAM-TIBET frontier: Rotung (*S. W. Kemp*). TONG-KING.

Type in the Paris Museum.

The material examined is in this case very scanty, and consists of the type, a second example from Tong-king, now in my collection, and the two Indian specimens referred to above. The type is 9 mm. long, but my example from Tong-king is only 8 mm. long. The Abor specimen is also 8 mm. long,

and in this the head, prothorax, and legs are all ferruginous. The Sikkim example is only 7 mm. long, but it is coloured like the type. Both the Indian specimens have more finely striate elytra than those from Tong-king, but the structural characters are otherwise similar, and all are therefore treated as belonging to one rather variable species.

Dupuis says that there is a seta present at each hind angle of the prothorax, but there is no sign of one on any of the three specimens now before me.

248. *Hexagonia uninotata*, sp. nov. [Plate II, fig. 3.]

Colour pale ferruginous, shiny; joints 1 to 3 of antennæ (rest fuscous), head, and prothorax dark ferruginous or brown, a common, oval, piceous spot on the apical half of the elytra, extending forward to middle and outwards on each side to stria 4 or stria 5.

Head pentagonal; frontal impressions as in *longithorax*; genæ hardly longer than eyes, which do not project laterally far beyond them, curving backwards nearly uniformly to neck; a moderately deep groove (viewed from above) on each side between the fovea and the postorbital pore; antennæ just reaching base of elytra. *Prothorax* convex, cordate, as wide as head, slightly wider than long, widest at a fourth from apex, base arcuate, so that its sides are oblique close to the angles, front angles rounded away, sides rounded in front, then nearly straight to a point just before base, where there is a gentle sinuation, the hind angles slightly obtuse, but sharp, and projecting a little laterally, a seta on each side at the widest point, none behind; median line deep, basal foveæ short and not very deep; surface punctate along all the margins, in the foveæ, along the median line, and on each side of disk in front. *Elytra* rather flat, a little more than a half wider than prothorax, more than twice as long as wide, sides nearly parallel, basal border angulate over stria 5, terminating at stria 3, and thence replaced by a slight ridge; striæ only moderately impressed, finely punctate, 1, 2, and the short scutellary stria arising in an umbilicate pore behind the basal ridge; intervals slightly convex, 8 and 9 narrower than the rest, dorsal pores as in *terminata*. Microsculpture of the elytra slight, hardly forming meshes, even behind. *Sternum*: prosternum densely punctate; mesosternum, sides of metasternum, and metepisterna moderately punctate. *Legs*: claws normal, without projecting tooth.

Length, 7.75–8.25 mm.

Distribution. UNITED PROVINCES: Dehra Dun (A. K. Sharma). BIHAR: Chapra (Mackenzie); Pusa (T. B. Fletcher and U. Bahadur).

Type in my collection.

One of the Dehra Dun examples is labelled "ex *Acacia catechu*," and one of the Pusa examples "on maize stubbles."

249. *Hexagonia stenodes*, sp. nov.

Very similar to *uninotata*, and resembling it in coloration, but the prothorax is piceous, the head nearly black, the elytra, instead of the oval spot, having the apical third black, the dark colour running a little forwards along the suture.

Head rather larger in proportion to the prothorax; the lateral sulcus on each side adjoining the eye continuing unbroken and very deep (viewed from above) to the post-orbital pore. *Prothorax* exactly similar in form, but the punctures on the surface are a little larger and more numerous. *Elytra* a little narrower and longer, a third wider than prothorax, two and a third times longer than wide, sides exactly parallel, basal border similar; striæ moderately deep, finely but clearly punctate, the punctures visible to apex, the intervals moderately convex. The remaining characters are all as in *uninotata*.

Length, 8-8.5 mm.

Distribution. BENGAL: Dacca. ASSAM-TIBET frontier: Abor Expedition, above Panji, 4000 feet (*S. W. Kemp*).

Type in the British Museum.

The Abor specimen was found under bark.

Genus **DINOPELMA**.

Dinopelma Bates, Proc. Zool. Soc. Lond. 1889, p. 385; Andrewes, Ann. Mag. Nat. Hist. (9) xiv, 1924, p. 391; id., Journ. F.M.S. Mus. xvi, 1931, p. 437; id., Soc. Ent. Fr., Livre du Centenaire, 1932, p. 253.

TYPE, *Dinopelma plantigradum* Bates. (Borneo.)

Body winged, glabrous, surface usually shiny.

Head contracted behind to the more or less constricted neck; eyes prominent, adjoining buccal fissure, hind supra-orbital seta distant from eye; clypeus bisetose, labrum transverse, its front margin truncate and sexsetose; mandibles fairly long and stout, the teeth along their inner margin rudimentary; ligula carinate beneath, its apex bisetose, truncate or emarginate, never deeply cleft, paraglossæ narrow, membranous, free, curving slightly inwards, and extending a little in front of ligula; mentum wide, emarginate, lobes rounded, an obtuse tooth in the emargination, with a seta on each side, epilobes present, which sometimes terminate on each side in a slight tooth at the apex of the lobes, submentum with a single seta on each side; maxillæ with an

inner row of bristles, the apex sharp at extremity, jointed and bent inwards, with a stout brush of hairs on its outer side; palpi glabrous, including the penultimate joint of the labials, last joint slightly shorter than the rest and truncate at apex; antennæ fairly long, pubescent from the basal third of joint 4, joint 1 stouter than the rest, 3 a little shorter than 1, 2 about half as long as 3, 4 to 11 approximately equalling 1.

Prothorax more or less quadrate, sometimes with a slight sinuation before the basal angles, lateral margins with or without setæ, a sulcus on each side, running from or near front margin, parallel to and within the lateral border, to a point distant about a fourth or fifth from base, thence turning outwards and joining the border.

Elytra with a bordered base, an inner plica (sometimes obsolete), and an emargination on each side near apex, which hardly shows the plica (when present) from above; 9-striate and with a scutellary stria between stria 1 and suture. Microsculpture present as a rule on the elytra only, where it is formed by isodiametric meshes.

Sternum and *venter*: hind body subpedunculate, the peduncle more or less bordered and with a pair of short longitudinal carinæ beneath, just in front of a concave bordered space between the mesocoxæ; metasternal process bordered; ventral segments bisetose, apical segment bisetose in the ♂, quadrisetose in the ♀. *Legs*: tibiæ outwardly sulcate; tarsal joints wide, triangular, and emarginate at apex, clothed beneath with short hairs, joints 1 to 3 decreasing in length, 4 nearly as large as 2 and deeply bilobed, claws smooth.

The colour is generally black or piceous in the larger Malay species, but usually with ferruginous markings in the smaller ones, which, differing comparatively little in their structural characters, are distinguishable chiefly by the pattern on the elytra.

Range. Southern Burma, Siam, Java, Sumatra, Borneo, and the Philippine Is.

Key to the Species.

- | | |
|--|---------------------------------------|
| 1 (2) <i>Prothorax</i> slightly, though evidently, wider than long, its hind angles projecting a little laterally, basal foveæ punctate, lateral sulcus bending sharply outwards behind to the margin. Length 8 mm. | [p. 17.
<i>bouchardi</i> , Filde., |
| 2 (1) <i>Prothorax</i> barely wider than long, its hind angles projecting conspicuously outwards, lateral sulcus not bending sharply outwards behind to the margin, basal foveæ impunctate. Length 7 mm. | [p. 18.
<i>leptaleum</i> , Andr., |

250. *Dinopelma bouchardi*, *Plide*.

Hexagonia bouchardi Pouillaude *, *Insecta*, iv, 1914, p. 164, ff. 1-3;
Andrewes, *Tijdschr. Ent.* lxxii, 1929, p. 305.

Dinopelma bouchardi Andrewes, *Ann. Mag. Nat. Hist.* (10) vii,
1931, p. 528; id., *Soc. Ent. Fr., Livre du Centenaire*, 1932,
p. 261.

Colour piceous, shiny; antennæ, venter, sutural interval, and margins of elytra from about stria 6 ferruginous; palpi and an oblong transverse spot near the apex of the elytra, extending on each side to interval 5, pale ferruginous.

Head wide, contracting behind to a deep neck constriction, eyes prominent, longer than genæ, which are curved; frontal foveæ deep, curving inwards behind, bounded outwardly on each side by a ridge; antennæ rather slender, extending well beyond base of prothorax. *Prothorax* convex, quadrate, as wide as head and slightly, though evidently, wider than long, sides of base a little oblique, front angles rounded away, sides bisetose, narrowly bordered, very gently rounded in front and faintly sinuate before the hind angles, which are slightly obtuse, though fairly sharp, and project a little laterally, lateral sulcus well developed; median line deep, hind transverse impression fairly deep, basal foveæ deep, produced a little in front, rugose-punctate, surface generally rather faintly transverse-striate. *Elytra* convex, subovate, nearly two and a half times as wide as prothorax, a half longer than wide, border forming an obtuse tooth above the shoulder; striæ moderately impressed, finely punctate, deeper near apex, intervals slightly convex, 3 with three pores, the first near base adjoining stria 3, the second and third at two-thirds and five-sixths respectively, both on the interval but nearer stria 2 than stria 3, 5 with a single pore at three-fourths, also on the interval, but close to stria 5, surface impunctate. Microsculpture rather faint, on the apical half of the elytra only.

Length, 8 mm.; *width*, 3.3 mm.

Distribution. BURMA: Tenasserim, Tavoy (*Doherty*). JAVA. SUMATRA.

Type in Mr. René Oberthür's collection.

The description given above applies to typical examples from Java and Sumatra. The species is introduced here because in the British Museum there is a specimen from Tavoy, possibly immature, which agrees structurally with the type-form, though there is no defined apical spot on the elytra, the pale margin merely widening a little at apex.

251. *Dinopelma leptaleum*, Andr. [Plate II, fig. 9.]

Dinopelma leptaleum Andrewes, Soc. Ent. Fr., Livre du Centenaire, 1932, p. 262.

Colour as in *bouchardi*, but with a smaller pale spot at the apex of the elytra.

A little smaller and narrower than *bouchardi*, though remarkably like it in general appearance. *Head* nearly similar, but with rather less prominent eyes. *Prothorax* evidently narrower, hardly wider than long and slightly narrower than head, the lateral sulcus reaching the margin behind without bending suddenly outwards, the hind angles sharp, right, and projecting further laterally, the basal foveæ with hardly a trace of puncturation. *Elytra* a little flatter and narrower, the border forming a sharper angle over the shoulder; otherwise the only difference is in the microsculpture, the isodiametric meshes of which are visible throughout.

Length, 7 mm.; *width*, 2.5 mm.

Distribution. BURMA: Tenasserim, Tavoy. SIAM: Renong (all *Doherty*).

Type in the British Museum.

Of the four specimens examined three are similar, but one of those from Siam, probably immature, is ferruginous throughout, though the elytra are a little paler at margins and apex.

It is quite possible that a third species, *D. lunifer* Andr., at present known only from Perak, may be met with in Southern Burma. It will be readily recognized by its pale ferruginous colour, with a brown crescent on the disk of the elytra.

Group XII. CYMBIONOTINI.

This group, known to Chaudoir by the name of COSCINIDES, and to be found in recent catalogues under the name of GRANIGERINI, contains only one genus, *Cymbionotum*. The body is flat, pedunculate, and pubescent, reminiscent of the genus *Siagona*. The head has on each side a suborbital longitudinal ridge and two supraorbital setæ, there are several setæ in the mandibular scrobe, the ligula is quadrisetose at apex, the penultimate joint of the labial palpi is bisetose, and the antennæ are pubescent throughout; the prothorax and elytra are very similar in form to those seen in *Siagona*, the former with two lateral setæ on each side, the latter with the basal border reaching the peduncle. Microsculpture is wanting. The metacoxæ are contiguous, the tarsi pilose on the upper surface, the protarsi ♂ undilated.

As the name *Coscinia* is preoccupied and *Graniger*, as I showed in 1933 (Trans. Ent. Soc. Lond. p. 3), belongs to the HARPALINI, I adopted the new name of CYMBIONOTINI for the group.

Genus CYMBIONOTUM.

Coscinia Dejean (not Hübner), Spec. Gen. Col. v, 1831, p. 478; Lacordaire, Gen. Col. i, 1854, p. 167; Chaudoir, Mon. des Siagonides, Bull. Mosc. 1876, i, p. 115; Bedel, Catalogue raisonné des Coléoptères du Nord de l'Afrique, 1897, p. 109.

Cymbionotum Baudi, Berl. Ent. Zeitschr. 1864, p. 211; Andrewes, Trans. Ent. Soc. Lond. 1933, p. 3.

Graniger Chaudoir (not Metchulsky), Bull. Mosc. 1876, i, p. 118; Semenov, Rev. Russe d'Ent. iii, 1903, p. 169.

TYPE, *Siagona schüppeli* Dejean. (Africa.)

Body winged, flat, punctate, and pubescent, as in *Siagona*.

Head large, neck with a fairly deep constriction; eyes small and not very prominent, separated, though not widely, from the buccal fissure; genæ inconspicuous; clypeus bisetose, clypeal suture obsolete; labrum emarginate in front, sex-setose; sides bordered by a narrow ridge, frontal sulci obsolete; mandibles short but stout, hooked at apex, each with some slight jagged teeth at middle; ligula somewhat dilated at apex, truncate, quadrisetose, the paraglossæ membranous, narrow, glabrous, curving inwards, and extending well beyond ligula; mentum wide, with strongly rounded sides, the emargination wide and furnished with a bicuspid tooth, epilobes well developed; maxillæ with the outer lobe two-jointed, the inner one hooked at apex, the inner margin furnished with numerous bristles; palpi short, sparsely setulose, maxillaries with the apical joint twice as long as the penultimate, tapering at apex; labials with the last joint subtruncate at apex; antennæ pubescent, more densely towards apex, about half as long as the body, submoniliform, joint 1 longer and stouter than the rest, 2 very short, subglobular.

Prothorax cordate, rather vaguely constricted close to base, the sides with a very narrow border, a long seta on each side close to the apex and another on the hind angle, the surface punctate.

Elytra rather flat, the base truncate, produced in front to form a peduncle, as in *Siagona*, the shoulders square, the sides nearly parallel, the border rounding the shoulder and reaching the peduncle, a slight sinuation sometimes present on each side before apex, inner plica very slight; striæ variable, but when present lightly impressed, a few long setæ projecting from the marginal pores, surface punctate, without any

distinct dorsal pores. Microsculpture wanting, though some isodiametric meshes can sometimes be seen on the neck.

Sternum : prosternum punctate, with a deep median sulcus, a transverse sulcus just before base; metasternum punctate at sides, nearly smooth at middle, metepisterna long and narrow. *Venter* more finely punctulate than the sterna. *Legs* more or less pilose; femora dilated; mesotibiæ with a slight emargination on the outer side near apex, and above it a slight projection, bearing a bunch of bristles, directed backwards; joints 1 to 4 of tarsi very short, decreasing gradually in length from 1 to 4, 5 as long as the first four taken together; the claws long and smooth.

Range. Southern Asia, excluding the Malay Archipelago, Persia, Transcaspia, and Africa.

Nothing is known of the life-history of these insects.

With the slender material available, adequate only in the case of *helferi*, it has not been possible to ascertain the relationship existing between the clypeal tubercle and the sex of the insect, though in other genera a horn or tubercle on the head (e. g., *Carterus*) or on the mandible (e. g., *Siagona* and *Oxylobus*) is a ♂ character. In *helferi* the ♂ has a well-developed tubercle, and one more or less developed is present on all the numerous specimens examined, but in the case of the other species further material is required, no less than three of those enumerated below being represented each by a single example.

Key to the Species.

- | | |
|--|--------------------------------------|
| 1 (6) Antennæ with joints 5 to 10 twice as long as wide. Large species of at least 5.25 mm. in length. | |
| 2 (5) Antennæ with joint 2 globular; median line of the prothorax very fine; body flat, pubescence short and inconspicuous. Length not exceeding 6 mm. | |
| 3 (4) Elytra finely but very distinctly punctate; colour of upper surface uniformly piceous. Length 6 mm..... | <i>semelederi</i> , Chaud., [p. 21.] |
| 4 (3) Elytra very finely and rather indistinctly punctate; colour of upper surface ferruginous or dark red, the elytra with a black crescent at apex. Length 5.25 mm. | [p. 22.] |
| 5 (2) Antennæ with joint 2 pyriform; median line of the prothorax fairly deep; body moderately convex, pubescence fairly long and conspicuous, elytra red, with the apical half black. Length 7 mm. | <i>luniferum</i> , sp. nov., |
| 6 (1) Antennæ with joints 5 to 10 ovoid, not more than a half longer than wide. Small species, not exceeding 4.25 mm. in length. | <i>minax</i> , sp. nov., p. 22. |

- 7 (10) Upper surface ferruginous, the elytra sometimes with a vague cloud on disk.
- 8 (9) Upper surface dark ferruginous, the elytra sometimes clouded on disk; eyes moderately prominent; elytra barely four-fifths longer than wide, the inner striae distinctly though lightly impressed *helferi*, Chaud., p. 23.
- 9 (8) Upper surface pale ferruginous; eyes rather flat; elytra narrow, very nearly twice as long as wide, the inner striae indicated but not impressed [p. 24.
candidum, sp. nov.,
- 10 (7) Upper surface ferruginous, with a dark pattern on the elytra.
- 11 (12) Elytra with a deep black band across middle, stria 1 only distinctly impressed [p. 25.
fascigerum, Chaud.,
- 12 (11) Elytra with the apical half black, but with a pale triangular spot on each close to apex, the five inner striae lightly impressed [p. 25.
fluviale, sp. nov.,

252. *Cymbionotum semelederi*, Chaud.

Coscinia semelederi Chaudoir *, Bull. Mosc. 1861, i, p. 6; id., Mon. p. 124; Marseul, Abeille, 1867, p. xxxiii; Fairmaire, Ann. Soc. Ent. Fr. 1868, p. 472; Semenov, Hor. Soc. Ent. Ross. xxv. 1891, p. 288; Bedel, Cat. rais. Col. N. Afr. 1897, p. 109.

Cymbionotum collare Baudi *, Berl. Ent. Zeitschr. 1864, p. 213.

Colour piceous, palpi and tarsi ferruginous.

Head wide, moderately punctate, a little less closely on vertex; clypeus with a rounded boss on the middle of the front margin; joint 2 of antennae globular, 3 to 6 pyriform, narrow at base and dilated at apex, 7 to 10 similar but less dilated at apex, fully twice as long as wide. *Prothorax* punctate like the head, evidently though slightly wider than head, barely wider than long, apex a half wider than base, sides nearly parallel in front, thence strongly contracted to the apparent base, in front of which the hind angles project on each side as a minute rectangular tooth; median line extremely fine, the other impressions obsolete. *Elytra* a little more finely punctate than the head and prothorax, a fifth wider than prothorax, four-fifths longer than wide; striae punctate, the four inner ones visible though hardly impressed, except near apex, intervals flat, with a row of punctures down the middle of each, the puncturation at sides quite irregular, the punctures of the same size as those in the striae.

Length, 6 mm.

Distribution. BALUCHISTAN. AFGHANISTAN. SOUTH-WEST ASIA. NORTH AFRICA.

Type in Mr. René Oberthür's collection.

Though no specimens have been met with yet within the Indian frontier it is quite possible that the species extends its habitat as far as Sind.

253. *Cymbionotum luniferum*, sp. nov.

Colour ferruginous, head and prothorax dark red, elytra with a black crescent on the apical half, antennæ and femora piceous. In effect the elytra have the apical half black, with a ferruginous extension down the middle, reaching stria 5 on each side at base, gradually narrowing behind, and terminating at a fifth from apex.

Head large and wide, rather coarsely but not very closely punctate; clypeus with a slight tubercle at the middle of front margin; joint 2 of antennæ globular, 3 to 4 pyriform, narrow at base and dilated at apex, 4 a little shorter than 3 and 5, 5 to 8 twice as long as wide, 11 equal to 10 and both shorter than 1. *Prothorax* punctate like the head but a little less closely, barely wider than head but a fifth wider than long, apex two-thirds wider than base, sides nearly parallel in front but contracting sharply behind to the apparent base, just in front of which the hind angles project on each side as a sharp, distinct, rectangular tooth; median line fine, not reaching extremities, the other impressions obsolete. *Elytra* much more finely punctate than the head and prothorax, only a little wider than prothorax, four-fifths longer than wide; striæ finely and indistinctly punctate, the four inner ones only being clearly traceable and stria 1 no deeper at apex, intervals flat, with a widely spaced row of punctures, hardly larger than those in the striæ, down the middle of each, the puncturation at sides more irregular.

Length, 5.25 mm.

Distribution. PUNJAB: Lyallpur (*T. B. Fletcher*).

Type in the British Museum.

The type is labelled "India" (Nevinson collection), and as it bears no tubercle on the clypeus it is presumably a ♀.

254. *Cymbionotum minax*, sp. nov. [Plate III, fig. 2.]

Colour black, very slightly more than the front half of the elytra red, the palpi ferruginous. Body with unusually long pubescence.

Head wide, rather closely and coarsely punctate, hardly less closely on the vertex; clypeus without any boss or tubercle; antennæ submoniliform, joint 1 not more than twice as long as wide, equal to 11 in length, 2 to 10 more or less pyriform, narrow at base and dilated at apex, two rather shorter and

3 rather longer than the rest, which are twice as long as wide. *Prothorax* moderately convex, closely punctate, the punctures a little finer than those on the head, evidently though slightly wider than head, and a little wider than long, apex less than a half wider than base, sides gently rounded in front, but from about middle contracting rather sharply to the apparent base, in front of which the hind angles project on each side as a small rectangular tooth; median line fairly deep, crenulate, not reaching extremities, the other impressions obsolete. *Elytra* moderately convex, rather more finely punctate than the prothorax, a fifth wider than prothorax, slightly more than three-fourths longer than wide; the inner striæ indicated rather than impressed, the punctures in them slightly larger than those running down the middle of each interval, so that there are about sixteen rows of punctures, fairly regular on the disk but more irregular near the sides.

Length, 7 mm.

Distribution. NORTH INDIA (?) (*Capt. Boys*).

Type in the Hope Department of the Oxford University Museum.

The specimen is unique, and the only label it bears is "Capt. Boys," but as he is not known to have collected anywhere but in North India it may be assumed that it was found in that region.

C. semirubricrus Reitter from Mt. Lebanon seems nearly related, but is smaller and only the apical third of the elytra is black; it is only moderately punctate, and the elytra are almost twice as long as wide.

255. *Cymbionotum helferi*, Chaud. [Plate III, fig. 1.]

Coscinia helferi Chaudoir *, Bull. Mosc. 1850, i, p. 441; id., Mon., p. 122; Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 286.

Colour rather dark ferruginous, the head, prothorax, and antennæ generally darker than the rest of the body and sometimes brown, a vague brown spot sometimes visible on the disk of each elytron.

Head moderately and not very closely punctate; clypeus with a tubercle at the middle of the front margin; antennæ moniliform, joint 2 a little shorter and 3 a little longer than 4 to 10, which are ovoid and not much longer than wide. *Prothorax* punctate like the head, slightly wider than head and slightly wider than long, apex a half wider than base, sides with border vaguely crenulate, almost parallel at first and sharply contracted to the apparent base, before which there is a gentle sinuation, the hind angles standing out on each side before the apparent base as a sharp projecting tooth; median line deep, but not reaching extremities, the

other normal impressions obsolete. *Elytra* more finely punctate than the head and prothorax, about a fourth wider than prothorax, nearly four-fifths longer than wide; striæ rather finely and indistinctly punctate, 1 fairly deep on the apical half only, 2 to 4 or 5 generally visible, the outer striæ wanting; intervals nearly flat, a row of punctures down the middle of each, the puncturation generally a little irregular, especially at sides.

Length, 3–4 mm.

Distribution. BURMA: Bhamo and Mandalay (*L. Fea*); Prome and Toungoo (*G. Q. Corbett*); Tharrawaddy (*G. Q. Corbett* and *H. G. Champion*); Pegu; Insein (*H. G. Champion*); Rangoon (*L. Fea* and *E. A. D'Abreu*); Martaban (*J. W. Helfer*); Tenasserim (*J. W. Helfer* and *E. T. Atkinson*); Victoria Point (*E. T. Atkinson*). SIAM. LAOS. COCHIN-CHINA. CAMBODIA.

Type in Mr. René Oberthür's collection.

256. *Cymbionotum candidum*, sp. nov.

Colour pale ferruginous, head reddish-brown, antennæ piceous.

Head moderately punctate, a little less closely on vertex; clypeus with a conspicuous tubercle at middle of front margin; eyes rather flat; antennæ moniliform, joint 1 hardly longer than 11, 2 a little shorter and 3 a little longer than the other intermediate joints, 4 pyriform, 5 to 11 more or less ovoid. *Prothorax* with the punctures a little finer and less closely placed than those on the head, slightly wider than head but hardly appreciably wider than long, apex about a half wider than base, sides rather sharply rounded close to the front angles, almost angulate at the widest point, contracted behind a little more gradually than in the other species, the hind angles projecting on each side as a minute tooth; median line fairly deep but not reaching extremities, transverse basal sulcus moderately impressed at middle. *Elytra* a little more finely punctate than the prothorax, a sixth wider than prothorax, very nearly twice as long as wide; stria 1 impressed near apex only, otherwise the four or five inner striæ are merely indicated by the rows of punctures, intervals flat, with a row of punctures down the middle of each, the puncturation very clear, but somewhat irregular both in the striæ and on the intervals, quite irregular at sides.

Length, 3.6 mm.

Distribution. PUNJAB: Chichawatni Plantation (*R. N. Mathur*).

Type in the British Museum. The type is at present unique.

257. *Cymbionotum fascigerum*, Chaud.

Coscinia fasciger Chaudoir *, Bull. Mosc. 1852, i, p. 92; id., Mon. p. 121; Bates, Ann. Soc. Ent. Fr. 1889, p. 264.

Very similar to *helferi* and about the same size, though slightly narrower. The colour is the same also, but here there is a deep black band across the elytra occupying from a third to a half of the surface. The head and prothorax are similar, but the proportions are slightly different, the prothorax being barely wider than head or wider than long, and the puncturation of the surface is a little finer. The elytra are only a fifth wider than prothorax and twice as long as wide, the striation as in *helferi*, but the punctures throughout are larger and more distinct, so that the inner striæ, though not more impressed, are more clearly visible.

Length, 3.25–4.25 mm.

Distribution. UNITED PROVINCES: Fyzabad (*R. W. G. Hingston*); Kheri Forest division (*H. G. Champion*). BENGAL: Calcutta (*J. W. Helfer*). MADRAS: Barkuda Island in Lake Chilka (*N. Annandale*); Madras (*F. H. Gravely*). CEYLON: Hambegamuwa and Horawupotana (*G. M. Henry*). COCHIN-CHINA. ANNAM.

Type in Mr. René Oberthür's collection.

The indications of length given above, both for this species and for *helferi*, include those of the author, but among the numerous specimens examined no example of *fascigerum* has exceeded 4 mm. in length and none of *helferi* has been less than 3.25 mm.

258. *Cymbionotum fluviale*, sp. nov.

Colour ferruginous, antennæ, head, and prothorax reddish brown, elytra with the apical half black, but with a pale triangular spot on each close to apex, not quite reaching either margin or suture.

Head moderately punctate, with a small smooth area on vertex; clypeus with a very slight tubercle; antennæ moniliform, joints 1 and 11 of equal length, 2 to 7 short and more or less pyriform, 8 to 10 ovoid. *Prothorax* a little more coarsely punctate than the head, slightly wider than head and equally slightly wider than long, apex nearly a half wider than base, sides gently rounded in front and then strongly contracted to the apparent base, in front of which the hind angles project on each side as a minute rectangular tooth; median line fairly deep but not reaching extremities, slight basal foveæ visible near the angles. *Elytra* much more finely punctate than the prothorax, a fourth wider than prothorax, three-fourths longer than wide; striæ finely punctate, the five inner

ones lightly impressed, 1 moderately impressed on disk and fairly deep near apex, intervals nearly flat, a row of fine punctures down the middle of each, the puncturation irregular at sides and somewhat irregular on disk both in the striæ and on the intervals.

Length, 4 mm.

Distribution. BENGAL : Sandarbans, Narkeldanga.

Type in the British Museum. The type is at present unique, and is labelled "*ex Sonneratia apetala*."

Group XIII. MELÆNINI.

There is only one genus, *Melænus*, which has hitherto been associated with *Cymbionotum*, but, although it is similar in many of its characters, it is so widely different in others that it has seemed best to form a separate group for it. The body is glabrous, the head not contracted behind, with a longitudinal suborbital ridge and a single supraorbital seta on each side, the mandibles with a seta in the scrobe, the ligula narrow and bisetose at apex, the penultimate joint of the labial palpi bisetose on the inner margin, but with a few small setæ near base, the first four joints of the antennæ glabrous; the hind lateral seta in the prothorax is wanting and the elytral border only extends inwards to a point opposite stria 5. The metacoxæ are barely separated by the sharp point of the metasternum, the tarsal joints are pilose on the upper surface, the protarsi ♂ undilated.

Genus MELÆNUS.

Melænus Dejean, Spec. Gén. Col. v, 1831, p. 481; Brullé, in Audouin et Brullé, Hist. Nat. Ins. v, 1835, p. 85; Lacordaire, Gen. Col. i, 1854, p. 166; Andrewes, Trans. Ent. Soc. Lond. 1921, p. 184; Péringuey, Ann. S. Afr. Mus. xxiii, 1926, p. 607.

TYPE, *Melænus elegans* Dejean. (Africa.)

Body winged, glabrous.

Head rather small, convex, neck unconstricted; eyes small and not very prominent, distant from buccal fissure; clypeus bisetose, clypeal suture just visible as a very fine line, labrum narrow, the front angles rounded, slightly emarginate in front and sexsetose; no frontal sulci; mandibles short, slightly hooked at apex, right one with two teeth near middle, left one with one tooth near base, upper surface longitudinally strigose; ligula narrow, corneous, bisetose, widened and hollowed out at apex, with a sharp longitudinal ridge beneath, paraglossæ whitish, filamentous, free, rather longer than ligula; mentum short, moderately emarginate, with an

emarginate median tooth, shorter than lobes, which are rounded at sides and apex, the epilobes very wide, extending far in front of the lobes, gula with a seta on each side; maxillæ with the outer lobe two-jointed, inner lobe setulose along inner margin and furnished also with a row of bristles, apex bare, sharp, and strongly hooked; maxillary palpi with the antepenultimate rather longer than the apical joint, glabrous (except at apex), penultimate rather shorter than the apical joint, dilated towards apex and setose, apical joint setose, a little inflated, truncate at apex, labial palpi with the last two joints about equal in length, the apical joint cylindrical, setose, contracted at base, subtruncate at apex; antennæ reaching middle of elytra, joints 1 to 4 glabrous, 5 to 11 densely setose; 1 short, cylindrical, with a single seta on the upper surface near apex, 2 very short, 3 and 4 with a few setæ at apex, 3 equal to and 4 a little shorter than 1, 5 to 11 distinctly longer than 1, flattened, with a longitudinal ridge down the centre of each.

Prothorax cordate, a single seta on each side at a fourth from apex, none at basal angle, base with a fringe of very fine yellowish hairs, its sides oblique close to the hind angles.

Elytra with the base pedunculate, the border rounding the shoulder and extending inwards to a point opposite the middle of interval 5, a slight sinuation on each side near apex, and an inner plica visible in the sinuation; fully striate, the striæ deep and punctate, 1 to 4 not reaching base and each with a deep puncture in front of it on the peduncle, 8 only reaching apex, 8 and 9 joining before reaching base, 9 ending behind at the sinuation, scutellary striole wanting; intervals convex, almost costate at sides, 1 to 8 terminating in a ridge behind, which runs parallel with the apical border, a few long setæ, chiefly near base and apex, arising from the marginal pores. Microsculpture formed by extremely fine transverse lines, which are very vague on the head and prothorax. *Sterna* punctate; prosternal process depressed but hardly bordered; metasternal process finely bordered; metepisterna long and narrow. *Venter* punctate, glabrous, the last three segments transversely sulcate; apical segment ♀ with a pair of very small setæ, placed close together, ♂ without setæ. *Legs*: femora much dilated; tibiæ slender, the protibiæ not dilated at apex, mesotibiæ with a slight projection on outer side near apex, bearing a bunch of bristles; tarsi with the joints decreasing in length from 1 to 4, 5 with setæ beneath, claws smooth.

Range. India and Ceylon.

I found *M. piger* commonly in the refuse bordering the rice-fields at Belgaum, and it has been taken flying to light in the evening. Nothing is known of the life-history.

259. *Melænus piger*, Fabr. [Plate II, fig. 2.]

Brachinus piger Fabricius *, Syst. Eleuth. i, 1801, p. 219; Schaum, Stett. Ent. Zeit. 1847, p. 49; Erichson, Stett. Ent. Zeit. 1847, p. 142.

Melænus piger Motschulsky, Études Ent. iv, 1855, p. 42; Andrewes, Trans. Ent. Soc. Lond. 1921, pp. 164 and 185.

Colour dull black, sometimes with a faint purplish lustre; tarsi, labrum, palpi, and joints 5 to 11 of the antennæ brown, the last-named with a dense, short, yellowish pubescence.

Head convex, punctate, a little less closely on disk; clypeus smooth, the sides forming a ridge on each side in front of the eye. *Prothorax* convex, a half wider than head and a fourth wider than long, base evidently narrower than apex, oblique close to the angles, sides narrowly bordered, well rounded, front angles a little obtuse and rounded, hind angles forming on each side a small rectangular tooth; median line fairly deep, not reaching extremities, basal foveæ slight but visible, surface rather coarsely but not very closely punctate. *Elytra* moderately convex, a fifth wider than prothorax, about four-fifths longer than wide, hardly perceptibly widened behind; punctate-striate, the striæ moderately deep on disk, much deeper at sides, the intervals becoming gradually narrower and more convex from 5 outwards, so that 9 is hardly more than a fourth as wide as the inner intervals.

Length, 8–10 mm.; *width*, 2.5–3 mm.

Distribution. INDIA: common throughout the southern half of the peninsula. CEYLON: Horawupotana (G. M. Henry).

Type in the Copenhagen University Zoological Museum.

Only two other species of this genus are known, both from Africa, and one of those, *M. elongatus* Chaud., from Kordofan, described in 1843, has received no further notice. The other one, *M. elegans* Dej., is a well-known African insect. It is almost an exact counterpart of the Indian species, but may nevertheless be readily distinguished from it by the presence of a small tubercle on each side of the prothorax just in front of the hind angles.

Group XIV. APOTOMINI.

Another group containing a single genus, the species of which are small and in their general form recall those of the genus *Dyschirius*, but in *Apotomus* the body is more or less pubescent and the colour is different, being black, brown, or reddish, without any metallic lustre. The chief characters distinguishing the genus are the extremely long and slender palpi and the complete absence of visible sutures on the prothorax. The head has only one supraorbital seta on each

side, there is a seta in the mandibular scrobe, the penultimate joint of the labial palpi is pilose, and the antennæ have the two basal joints only glabrous; the metacoxæ are separated from each other, the meso- and metatibiæ are obliquely hollowed out externally at apex, the ♂ protarsi undilated.

Genus **APOTOMUS.**

Apotomus Illiger, Mag. Ins. vi, 1807, p. 348; Dejean, Spec. Gen. Col. i, 1825, p. 449; Lacordaire, Gen. Col. i, 1854, p. 172; Reitter, Synopsis (European species), Wien. Ent. Zeit. 1892, p. 137; Dupuis, Gen. Ins., Fasc. 117, Apotominae, 1911, p. 1; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 15.

TYPE, *Scarites rufus* Rossi. (Mediterranean basin.)

Body winged, pubescent.

Head small, eyes rather large, only moderately prominent, narrowly separated from the buccal fissure, genæ obsolete; labrum slightly emarginate in front, sexsetose, clypeal suture slight but visible, frontal sulci shallow; mandibles short but stout, hooked at apex; ligula narrow, rounded at apex and 4-setose, paraglossæ adnate, extending a little beyond the ligula; mentum deeply emarginate, without tooth, submentum with a seta on each side; maxillæ with the outer lobe two-jointed, the inner one furnished with numerous bristles along the inner margin, hooked at apex; maxillary palpi very long and slender, as long as the head, setulose, the last joint slightly shorter than the penultimate, contracted at apex, labial palpi even more slender than the maxillaries and only a third as long, setulose, apical joint pointed at its extremity, a little shorter than the penultimate; antennæ filiform, pubescent from and including joint 3, joint 1 dilated, about as long as 3, 2 about two-thirds of 3, the other joints equal, but the apical joint is a little longer and pointed at extremity.

Prothorax subglobose, strongly contracted behind and attached to the hind body by a peduncular extension of the mesothorax, base short, narrow, parallel-sided, embracing the peduncle, sides unbordered, a single seta at the widest point, all the different parts (pronotum, prosternum, propleura, episterna, and epimera) closely united, without any sign of suture.

Elytra moderately convex, oblong, with nearly parallel sides, slightly sinuate before apex, no basal border, 9-striate, the striæ punctate, no scutellary striole, marginal channel with fine punctures, from which here and there issue long setæ. Microsculpture formed by microscopic punctures or aciculations, but some isodiametric meshes are visible on the head.

Sterna more or less punctate; metepisterna much longer than wide. *Venter* rather closely and finely punctate. *Legs*: profemora moderately dilated; tibiæ without marginal bristles, the two hind pairs obliquely emarginate at apex on the outer side; tarsal joints long and slender, ♂ protarsi without dilated joints, claws smooth.

Range. Southern Europe, Africa, Madagascar, Southern Asia including the Malay Archipelago, and Australia.

Nothing is known of the life-history. In Southern Europe these insects are said to be found in little colonies under stones, and in India they frequently fly to light in the evening.

Key to the Species.

- 1 (2) Body clothed with a short grey tomentum, colour black or brown, the punctures of the elytral striæ obsolete close to base and apex *atripennis*, Motch., [p. 30.]
- 2 (1) Body clothed with a dense erect pubescence, colour dark ferruginous, the punctures of the elytral striæ clearly visible both near base and apex *hirsutulus*, Bates, p. 31.

260. *Apotomus atripennis*, Motch.

Apotomus atripennis Motchulsky *, Etudes Ent. vii, 1858, p. 22; Andrewes, Trans. Ent. Soc. Lond. 1928, p. 15.

Apotomus fuscus Motchulsky *, Etudes Ent. vii, 1858, p. 22; Bates, Ann. Soc. Ent. Fr. 1889, p. 264; Dupuis, Ann. Soc. Ent. Belg. 1911, p. 36; Andrewes, Trans. Ent. Soc. Lond. 1928, p. 15.

Apotomus xanthotelus Bates *, Ent. Month. Mag. xi, 1874, p. 95; id., Ann. Mus. Civ. Gen. xxvii, 1889, p. 100; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 286; Bouchard, Ann. Soc. Ent. Fr. 1903, p. 170; Dupuis, Gen. Ins., Fasc. 117, Apotominæ, 1911, t. f. 11.

Apotomus sumbawanus Heller (not Dupuis) *, Deutsch. Ent. Zeitschr. 1916, p. 275; Andrewes, Ann. Mag. Nat. Hist. (9) xvii, 1926, p. 254.

Colour black or brown; palpi, joints 1 and 2 of the antennæ, and legs ferruginous; joints 3 to 7 of the antennæ brown or black, the four apical joints yellowish white.

Body covered with an extremely short pale grey tomentum, frequently abraded, without the stiff erect pubescence generally seen in the other species of the genus, surface microscopically rugose-punctate.

Head with a slight impression on each side at the extremities of the clypeal suture; eyes large but not very prominent; antennæ quite reaching basal third of elytra. *Prothorax* not quite a half wider than head, a sixth wider than long, the sides contracting much more behind than in front, so that the apex is a half wider than the base; median line

lightly impressed but quite distinct, surface smooth, the area between the constriction and the base coarsely punctate. *Elytra* a half wider than prothorax, two-thirds longer than wide, a little depressed at middle just behind base, shoulders conspicuous, base sloping forward to the peduncle, lateral border not extending beyond shoulder, though the border of the epipleuron reaches the peduncle, sides with a slight sinuation before apex; striae moderately deep and conspicuously punctate, but much shallower near apex and disappearing on the basal declivity, though the inner striae sometimes reach the peduncle; intervals a little convex on disk, 1 somewhat raised, 4 a little wider than the others close to base.

Sterna rather coarsely punctate except the sides of the prosternum and the disk of the metasternum on each side of the median sulcus. *Venter* very finely rugose-punctate.

Length, 3-3.25 mm.

Distribution. BOMBAY: Bandra (*Jayakar*); Belgaum, Parle (*H. E. Andrewes*). MADRAS. CEYLON: Colombo (*J. Nietner*). CENTRAL PROVINCES: Nagpur (*E. A. D'Abreu*). UNITED PROVINCES: Haldwani (*H. G. Champion*). BENGAL: Calcutta (*F. H. Gravely*), Namsoo (*H. Stevens*). BIHAR: Pusa. SIKKIM: Rangit Valley, and Guelle Khola in the Tista Valley (*H. Stevens*). EASTERN DUARS (*H. Stevens*). BURMA: Bhamo and Rangoon (*L. Fea*); Tharrawaddy and Toungoo (*G. Q. Corbett*); Pegu; Tenasserim (*J. W. Helfer*). MALAY STATES. SIAM. INDO-CHINA. JAVA. SUMATRA. CELEBES. NEW GUINEA.

Type and type of *fuscus* both in the Moscow University Zoological Museum; that of *xanthotelus* in Mr. René Oberthür's collection; that of *sumbawanus* in the Dresden Museum.

Bates's "var. *pallidior*" (*Ann. Mus. Civ. Gen.* xxxii, 1892, p. 286) refers only to pale and probably immature specimens.

261. *Apotomus hirsutulus*, Bates. (Plate III, fig. 3.)

Apotomus hirsutulus Bates *, *Ann. Mus. Civ. Gen.* xxxii, 1892, p. 287; Andrewes, in *Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya*, 1914, par Guy Babault, Carab. 1924, p. 15.

Colour rather dark ferruginous, joints 1 and 2 of the antennae, palpi, and legs a little paler, joints 8 to 11 of the antennae yellowish white.

Body covered with dense erect pubescence, the microscopic puncturation of the surface very indistinct.

Very similar in form to *atripennis*, but the prothorax is a little less constricted behind and the basal area is rather more coarsely punctate. In the elytra the sides of the base run forward less obliquely to the peduncle, so that the shoulders

are squarer, the striæ are a little deeper, and the punctures quite evident both on the basal declivity and near apex.

Length, 3.25–3.75 mm.

Distribution. BOMBAY : Belgaum, Tudia (*H. E. Andrewes*) ; Kanara (*T. R. D. Bell*). MADRAS : Rambha and Barkuda Island in Lake Chilka (*N. Annandale*) ; Madura (*R. B. Wright*). CENTRAL PROVINCES : Nagpur and Balaghat (*E. A. D'Abreu*) ; Raipur, Birguri (*N. C. Chatterjee*) ; Hoshangabad (*T. B. Fletcher*) ; Lampta (*G. Babault*). UNITED PROVINCES : Haldwani and Kheri (*H. G. Champion*). BENGAL : Calcutta (*N. Annandale*, *F. H. Gravely*, *E. T. Atkinson*, and *H. S. Pruthi*) ; Sardah and Sandarbans (*F. W. Champion*) ; Diamond Harbour (*T. D. A. Cockerell*) ; Khargpur (*R. Hodgart*). BIHAR : Pusa (*H. M. Lefroy*) ; Ranchi (*W. H. Irvine* and *W. B. R. Laidlaw*) ; Madhupur (*C. Paiva*) ; Singbhum (*F. H. Gravely*). BURMA : Rangoon and Pegu, Palon (*L. Fea*) ; Tharrawaddy and Toungoo (*G. Q. Corbett*) ; Tenasserim (*J. W. Helfer*).

Type in the Genoa Civic Museum.

Group XV. BROSCINI.

A moderately large group, with nearly thirty genera, spread throughout the world, but attaining its maximum development in Australia and New Zealand, and represented in India by five genera, all found in the Himalayas. The body is pedunculate, the contracted and generally sub-cylindrical base of prothorax connected with the hind body by a stalk-like prolongation of the mesothorax, the scutellum usually placed on the peduncle above the elytra. On the head the number of supraorbital setæ is variable, the mandibles have a seta in the scrobe, and the penultimate joint of the labial palpi is bisetose ; the prothorax has a variable number of lateral setæ, the hind one, when present, placed at some distance in front of the hind angle. The metacoxæ, at least in the Indian species, are contiguous or only very narrowly separated.

Key to the Genera.

- 1 (8) Neck not or only lightly constricted ;
prothorax bordered at sides ; apical
ventral segment ♀ with two marginal
setæ on each side.
- 2 (7) Head with a single supraorbital seta on
each side ; prothorax with not more
than 3 marginal setæ on each side ;
apical ventral segment ♂ with a single
seta on each side ; tarsal joints gla-
brous above.

- 3 (6) Temporal ridges well developed; prothorax with more than one marginal seta on each side; prosternal process sulcate. Large species of at least 14 mm. in length; colour black, bronze, or æneous.
- 4 (5) Submentum with two or three setæ on each side; prothorax with the lateral border regularly rounded, entire or only faintly crenulate; elytra regularly striate BROSCUS, p. 33.
- 5 (4) Submentum with a single seta on each side; prothorax with the lateral border evidently crenate and more or less incised opposite the front lateral pore; elytra confusedly punctate behind the shoulders CRASPEDONOTUS, p. 39.
- 6 (3) Temporal ridges obsolete; prothorax with a single marginal seta on the front half; prosternal process not sulcate. A single species not exceeding 11 mm. in length; colour green AXONYA, p. 40.
- 7 (2) Head with 3 (sometimes 4) supraorbital setæ on each side; prothorax with 4 to 7 marginal setæ on each side; apical ventral segment ♂ with two setæ on each side; tarsal joints with the upper surface sparingly clothed with long setæ CHÆTOBROSCUS, p. 42.
- 8 (1) Neck deeply constricted; prothorax unbordered at sides; apical ventral segment ♀ with a single marginal seta on each side BROSCOSOMA, p. 44.

Genus BROSCUS.

Broscus Panzer, Index Ent. 1813, p. 62; Lacordaire, Gen. Col. i, 1854, p. 239; Putzeys, Les Broscides, Stett. Ent. Zeit. 1868, p. 307; Ganglbauer, Käf. Mitteleur. i, 1892, p. 143; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 20.

Cephalotes Dejean, Spec. Gen. Col. iii, 1828, p. 426; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 91.

TYPE, *Carabus cephalotes* L. (Palæarctic region.)

Head large, wide, and moderately convex, a temporal ridge or suture running back on each side from a little below the eye to the margin of the prothorax; eyes moderately prominent, placed at a little distance from the buccal fissure, a single supraorbital seta; labrum sexsetose, slightly emarginate in front, clypeus bisetose, the clypeal suture generally visible though sometimes lightly impressed; mandibles stout, with some jagged teeth at base; ligula wide and truncate at apex, bisetose, the small paraglossæ, though free at apex, adjoining the ligula, but extending very little, if at all, beyond

it; mentum emarginate, with a short tooth in the emargination, sulcate (in the Indian species) though not cleft, with a pair of setæ beneath it, epilobes widening from base to apex along the inner margins of the lobes, beyond which they do not project, submentum with two or three setæ on each side; maxillæ with the outer lobe two-jointed, the inner one long, slender, curved, and densely furnished with bristles; palpi rather slender, truncate at apex, the last two joints not differing greatly in length; antennæ hardly extending beyond the base of the elytra, pubescent from and including joint 5 (but in the Indian species the apex of joint 3 and the apical half of joint 4 are setose), joint 1 fairly thick, hardly shorter than 3, 2 about two-thirds of 3, the remaining joints slightly longer than 2.

Prothorax convex, cordate, strongly contracted behind, sides rounded and bordered, with two or three marginal setæ, of which the hindmost is placed well in front of the hind angle.

Elytra convex, elongate, nine-striate, though the outer striæ are sometimes obsolete, scutellary striole rudimentary or wanting, interval 3 without dorsal pores.

Sterna: in the Indian species the prosternal process is furrowed and the metasternal process has an angular border, much more evident in *punctatus* than in the other two species.

Venter: apical segment with one seta on each side in the ♂, two in the ♀. *Legs* stout, the protibiæ somewhat dilated towards apex, tarsi practically glabrous above, the ♂ protarsi with the first three joints dilated and clothed beneath with spongiöse tissue.

Range. South China, North India, Irak, Arabia, palæarctic and circum-Mediterranean regions, and Canary Islands.

The larva of the common palæarctic species, *Broscus cephalotes* L., has been described by Schiødte (Nat. Tidsskr. 1867, pp. 504-7, t. 19, ff. 1-8), but nothing is known of the early stages of the Indian species.

Key to the Species.

- 1 (2) Body winged; eyes large, genæ inconspicuous, elytra with square shoulders, the striæ very lightly impressed, metepisterna twice as long as wide *punctatus*, Dej., p. 35.
- 2 (1) Body apterous; eyes small, genæ prominent, elytra with the shoulders obsolete, the striæ moderately impressed, metepisterna a half longer than wide.
- 3 (4) Prothorax evidently contracted in front, its sides coarsely rugose, with two lateral setæ, episterna lightly punctate. *taurulus*, Andr., p. 36.
- 4 (3) Prothorax hardly contracted in front, its sides not coarsely rugose, with three lateral setæ, episterna impunctate *bipilifer*, Andr., p. 38.

262. *Brosus punctatus*, Dej.

Cephalotes punctatus Dejean *, Spec. Gen. Col. iii, 1828, p. 431.

Percus nepalensis Hope *, Zool. Misc. 1831, p. 21; Dohrn, Stett. Ent. Zeit. 1879, p. 458; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 170.

Brosus punctatus Putzeys, Les Broscides, Stett. Ent. Zeit. 1868, p. 309; Bates, Scientific Results of the Second Yarkand Mission, 1891, Col., p. 4; Fletcher, Agr. Res. Inst. Pusa, Bull. 89, 1919, p. 34 (Biology); Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 20; Semenow, Rev. Russ. Ent. xx, 1926, p. 41; Andrewes, Fauna of British India, Carabidae, i, 1929, pp. 24, 32, and 36.

Brosus limbatus Ballion, Bull. Mosc. 1870, ii, p. 327; Chaudoir, Bull. Mosc. 1878, ii, p. 2.

Brosus batesi Semenow, Hor. Soc. Ent. Ross. xxv, 1891, p. 276 (note).

Colour of the upper surface dark bronze; underside, palpi (ferruginous at apex), joints 1 to 4 of antennæ, and legs black; rest of antennæ brown.

Body winged, glabrous.

Head with a slight constriction immediately behind the eyes, which are large and prominent; genæ short and oblique but quite visible, frontal furrows wide and shallow, bounded on each side outwardly by a carina which extends a little beyond mid-eye level, sides with some irregular, longitudinal striation, temporal ridges moderately developed in front, fine, but not interrupted behind, submentum with two setæ on each side, surface punctate, more finely and sparsely on vertex and neck, more coarsely and closely at sides and along the neck constriction. *Prothorax* constricted at a little distance from base, a third wider than head, evidently though not very much wider than long, base truncate, a little narrower than apex, sides bisetose, narrowly bordered, rather faintly near base, strongly rounded in front, sinuate at a sixth from base, the hind angles right and projecting a little laterally, front seta at apical third, hind one placed well before the angle, the propleura visible from above near base, which therefore appears wider than it really is; median line moderately impressed on disk, front transverse impression shallow, basal foveæ merged in the constriction, surface punctate, microscopically on disk, moderately in front, more coarsely and somewhat confluent on the basal area, a little transverse striation along the course of the median line. *Elytra* moderately convex, subovate, but with square shoulders, a fourth wider than prothorax, two-thirds longer than wide, the border rounding shoulder very sharply, bending backwards opposite stria 6 and terminating opposite interval 5; striate-punctate, the striae sometimes lightly impressed on the disk, but mainly formed by the punctures, which are very small,

almost disappearing at sides and behind, 8 visible and impressed close to apex, no scutellary stria; intervals flat, sometimes slightly convex on disk, marginal pores very fine, surface impunctate. Microsculpture isodiametric, very distinct on the elytra, less clearly defined on the head and prothorax.

Sterna more or less punctate, but the middle and sides of the prosternum and the middle of the metasternum are impunctate, as are the last four ventral segments; metepisterna fully twice as long as wide.

Length, 14–17.25 mm.; *width*, 4.75–6 mm.

Distribution. NORTH INDIA: common throughout the whole Himalayan tract from Peshawar to Assam and as far east as the Shan States, but not advancing far into the plains. IRAK. ARABIA. EGYPT.

Type in Mr. René Oberthür's collection; that of *nepalensis* in the British Museum; that of *limbatus* in the Odessa University Museum; that of *batesi* in the Petrograd Academy of Sciences.

A form of this species, var. *davidianus* Fairmaire (Ann. Soc. Ent. Belg. 1888, p. 7), in which the upper surface is æneous, is found in Yunnan and at Hong Kong. Specimens from North-East India are usually brighter than those from further west, and an example in my collection from Assam approximates the Chinese form in colour and is also blue along the marginal channels of the prothorax and elytra. A blue form of the species has been met with in the Khasi Hills.

This is one of the few examples among the CARABIDÆ in which "swarming" has been recorded, and notes on this and on the mode of life of the insect will be found in the Introduction to Volume I of the CARABIDÆ in this series, pp. 24 and 32.

263. *Brosicus taurulus*, Andr.

Brosicus taurulus Andrewes, Eos, iii, 1927, p. 70, f. 4.

Colour black, rather dull; palpi more or less piceous.

Body apterous, glabrous.

Head moderately constricted behind the eyes, which are small but prominent; genæ conspicuous, as long as eyes and extending nearly as far outwards; frontal furrows wide and shallow, bounded on each side outwardly by a carina; temporal ridges thick in front, interrupted behind, submentum with three setæ on each side, surface coarsely and irregularly rugose-striate, punctate in the constriction, middle of front and neck smooth and impunctate. *Prothorax* about a seventh wider than head and as much wider than long, base truncate, a little narrower than apex, sides bisetose, bordered, rounded

in front and sinuate at a sixth from base, hind angles right but not sharp, the propleura invisible from above; median line fairly deep, front transverse impression shallow, hind one including the foveæ near the angles deep, surface transversely rugose-striate, sides and base coarsely rugose. *Elytra* convex, ovate, nearly a half wider than prothorax, two-thirds longer than wide, the border ending opposite stria 5 without bending backwards, the shoulders obsolete; striæ moderately impressed on disk, deeper at sides, vague near apex, finely and not very

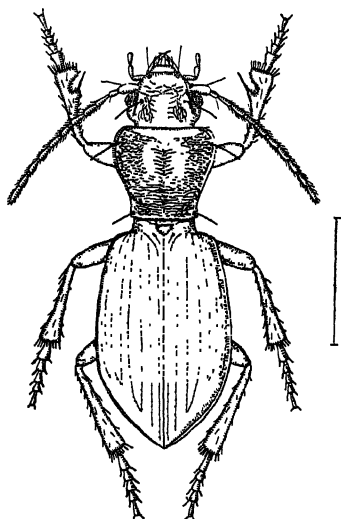


Fig. 1.—*Broskus taurulus* Andrewes.

distinctly crenulate, scutellary striole obsolete; intervals rather flat, more convex at sides, 7 with an irregular impression close to base. Microsculpture of the elytra isodiametrically asperate-punctate and very distinct, that of the head and prothorax indistinct. *Sterna* lightly punctate at sides, venter practically impunctate; metepisterna about a half longer than wide.

Length, 17–18 mm.; *width*, 5.4–5.8 mm.

Sikkim: Gnatong.

Type in my collection.

264. *Brosceus bipilifer*, Andr.

Brosceus bipilifer Andrewes, Eos, iii, 1927, p. 71, f. 5.

Colour black, faintly æneous; palpi and antennæ more or less piceous.

Body apterous, glabrous.

Smaller than *taurulus* but similar in form. The head differs only in being less coarsely rugose-striate. The prothorax is a sixth wider than the head and as much wider than long, the sides converge less in front and the marginal channels widen out close to the front angles, which are more rounded, there are two lateral setæ in front instead of one; the median line is short but distinct, the front transverse impression

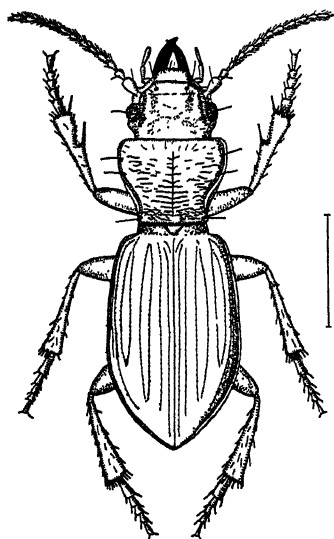


Fig. 2.—*Brosceus bipilifer* Andrewes.

obsolete, the hind one only moderately deep, the foveæ small, rounded, and deep, the surface with some fairly distinct transverse striation, subrugose along base, but quite without the coarse rugosity of the sides in *taurulus*. The elytra are almost exactly similar, though slightly narrower and with the outer striæ a little shallower. The microsculpture is similar, but the underside is impunctate.

Length, 14–15 mm.; *width*, 4.75–5.25 mm.

Distribution. SIKKIM: Kobong above Gnatong.

Type in my collection.

Genus **CRASPEDONOTUS**.

Craspedonotus Schaum, Berl. Ent. Zeit. 1863, p. 86; Putzeys, Les Brosides, Stett. Ent. Zeit. 1868, p. 314; Semenow, Hor. Soc. Ent. Ross. xxxiv, 1900, p. 45; id., Rev. Russ. Ent. x, 1910, p. 216.

Pseudobrosicus Semenow, Wien. Ent. Zeit. 1888, p. 248.

TYPE, *Craspedonotus tibialis* Schaum. (Japan and China.)

Body winged, glabrous.

Head large, wide, neck somewhat dilated, a slight constriction behind the eyes, temporal ridge well developed, at least in front; eyes at all events moderately prominent, distant from buccal fissure, a single supraorbital pore; labrum sexsetose, a little emarginate in front, clypeus bisetose, clypeal suture moderately impressed; mandibles long, curved, sharp at apex, with a well-developed tooth towards base; ligula and maxillæ as in *Brosicus*; mentum emarginate, with a tooth in the emargination, a pair of setæ beneath it, epilobes widening from base to apex, beyond which they do not project, submentum with a single seta on each side; palpi rather short, truncate at apex, the last two joints approximately equal; antennæ extending a little beyond the base of the elytra, pubescent from the middle of joint 4, joint 1 thick, about two-thirds as long as 3, 2 less than half as long as 3, the other joints about as long as 1 and somewhat dilated at apex.

Prothorax convex, cordate, strongly contracted behind, sides rounded in front and strongly sinuate before base, bisetose with a more or less crenate border.

Elytra convex, ovate, punctate-striate, the area immediately behind the shoulder confusedly punctate, a scutellary stria present but often indistinct, no dorsal pores.

Sterna: prosternal process furrowed, metasternal process bordered, metepisterna twice as long as wide. *Venter*: apical segment with one seta on each side in the ♂, two in the ♀. *Legs* stout, protibiæ strongly dilated at apex, tarsal joints glabrous above, ♂ protarsi with or without dilated joints.

Range. Turkestan, India, China, and Japan.

At present only three species have been described, one from the Himalayas, one from Turkestan, and one from China and Japan. Nothing appears to be known of the life-history.

265. *Craspedonotus himalayanus*, Sem. [Plate IV, fig. 10.]

Craspedonotus himalayanus Semenow, Rev. Russ. Ent. x, 1910, p. 217; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 21, t. 2, f. 4.

Colour black, elytra dull; joint 1 of antennæ, apex of palpi, and middle of tibiæ pale ferruginous.

Head with large and prominent eyes; genæ very short but conspicuous, projecting a little laterally instead of continuing the outline of the eye, and contracting sharply to the neck; frontal furrows long but shallow, bounded on each side outwardly by a thick elevated ridge; clypeal suture terminating at each end in a rounded pore; temporal ridges continued on each side to the neck by a fine carina; tooth of mentum sharp, not sulcate; upper surface of the mandibles longitudinally striate; surface irregularly striate, impunctate. *Prothorax* nearly a third wider than head, a third wider than long, base evidently narrower than apex, sides strongly rounded in front, but with a slight incision on each side a little before middle, at the point where the front pore and seta are placed, immediately behind which the border is dilated, sinuate at a fourth from base, the hind pore and seta placed just below the sinuation, hind angles slightly obtuse and rather blunt; median line at middle and front transverse impression moderately deep, basal foveæ not very deep, adjoining the sides, surface lightly rugose-punctate along the front transverse impression, the base coarsely rugose, disk with some rather vague cross-striation, more evident along the course of the median line. *Elytra* nearly a half wider than prothorax, fully a half longer than wide, shoulders square, border extending as far as the middle of interval 5, sides with a slight sinuation at about basal third; punctate-striate, the punctures small, the striæ deep near base, hardly impressed near apex, irregularly punctate behind shoulder, intervals convex near base but almost flat behind, surface with some fine vague cross-striation. Microsculpture isodiametric, a little more conspicuous on the elytra than on the head and prothorax.

Legs: protarsi ♂ with the first three joints somewhat dilated and furnished with hairy pads beneath.

Length, 20.5–23 mm.; *width*, 8–8.75 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE: Chitral, Lut-Koh Valley, Izh (*B. N. Chopra*). PUNJAB: Kulu, 5000–7000 feet (*C. Rost*); Kangra and Baddia (*G. Babault*); Parbatti Valley, 6000–8000 feet (*H. G. Champion*). UNITED PROVINCES: Dehra Dun.

Type in the Museum of the Academy of Sciences, Petrograd.

Genus **AXONYA**.

Axonya Andrewes, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 679.

TYPE, *Axonya championi* Andr. (India.)

Body winged, glabrous.

Head rather wide, with shallow frontal furrows, temporal ridges obsolete but visible at extremities, neck only slightly

constricted; eyes large, moderately prominent, separated rather narrowly from the buccal fissure, a single supraorbital seta; ligula bisetose, truncate at apex, paraglossæ rudimentary, shorter than ligula; labrum short, sexsetose, clypeus bisetose, with a longitudinal furrow on each side; mandibles short but strong, slightly toothed near base; mentum wide, with a short, sharp, slightly furrowed tooth in the sinus, at the base of which is a pair of setæ, epilobes wide, lobes slightly rounded at sides, the apex with an indentation on each side just outside the point where the lobes and epilobes join, submentum with a single seta on each side; maxillæ sharply hooked at apex, with few but stiff bristles mingled with finer hairs on the inner margin; palpi with the last joint nearly cylindrical, truncate at apex, in the maxillaries quite twice as long as the penultimate joint, in the labials a little longer only; antennæ reaching base of elytra, pubescent from the middle of joint 4, 1 stout, as long as 3, 2 hardly more than half as long as 3, the rest gradually diminishing in length towards apex.

Prothorax cordate, moderately contracted behind and slightly constricted, one marginal seta only at apical fourth.

Elytra unbordered at base, sides hardly sinuate behind, the border ending in a blunt tooth in front opposite stria 5, the scutellum distinctly visible between the elytra at base; 9-striate, without scutellary striole, 1-2 and 7-9 usually reaching apex, 3-6 abbreviated behind, 8 deeper and 7 more or less interrupted before reaching apex, no dorsal pores.

Sterna punctate at sides; prosternal process unbordered and with only the suggestion of a furrow; metasternal process more or less bordered by a row of punctures; metepisterna twice as long as wide. *Venter* punctate only at sides of base, apical segment with one marginal seta on each side in the ♂, two setæ placed very close together in the ♀. *Legs* short, the protibiæ not much dilated at apex, the tarsi glabrous above, protarsi ♂ with the first three joints dilated and clothed beneath with scaly hairs.

Range. North India.

Nothing is known of the early stages.

266. *Axonya championi*, Andr. [Plate IV. fig. 11, *a* & *b*.]

Axonya championi Andrewes, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 680; id., in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 22, t. 2, ff. 5, 5*a*, and 5*b*; id., Ent. Month. Mag. 1926, p. 68.

Colour dark green, the elytra often metallic green at sides, surface shiny; underside black, venter piceous; joints 1 to 4

of the antennæ (rest fuscous), palpi, labrum, and tarsi ferruginous, femora and tibiæ flavous.

Head moderately convex, frontal furrows bounded externally on each side by a slight ridge, between which and the eye there is a deep sulcus, clypeal suture distinct, ending on each side in a pore, middle of front and vertex smooth, the furrows and neck moderately punctate. *Prothorax* convex, hardly wider than head and very little wider than long, about equally contracted at extremities, sides of base oblique close to the angles, the front angles distinct and not much rounded, sides finely bordered, gently and evenly rounded to basal fifth, and there rather strongly sinuate so that the rectangular hind angles project a little laterally; median line fine, not reaching extremities, front transverse impression obsolete, hind one distinct but not deep, basal foveæ just indicated on each side close to the sinuation, surface moderately punctate, chiefly on the basal area and along the margins, nearly impunctate on each side of disk. *Elytra* convex, with square shoulders and nearly parallel sides, three-fourths wider than prothorax, quite a half longer than wide, widest a little behind middle; deeply punctate-striate, the outer striæ not quite reaching base, 9 punctate like the rest, without setæ, all deeper near base than apex, intervals moderately convex. Microsculpture isodiametric, fairly distinct on the elytra, hardly visible on the head or prothorax.

Length, 9.5–11 mm.; *width*, 3.6–4 mm.

Distribution. PUNJAB: Kangra and Nalagar (*G. Babault*); Simla Hills, Asni (*B. N. Chopra*). UNITED PROVINCES: West Almora, Haldwani, and Sarju Valley (*H. G. Champion*); Dehra Dun, Mothrawala, Rispana River; Kathgodam (*S. W. Kemp*); Lucknow; Bijnor; Naini-Tal. SIKKIM: Birik in the Tista Valley (*H. Stevens*). BENGAL: Namsoo (*Stevens*). ASSAM: Abor Expedition, between Pasighat and Kobo, Dihong River (*S. W. Kemp*); Bhutan frontier, Mangaldai (*S. W. Kemp*).

Type in my collection.

Mr. Champion writes of this species: "Common on river-banks in wet places. Runs freely on the water."

Genus CHÆTOBROSCUS.

Chætobrosacus Semenow, Hor. Soc. Ent. Ross. xxxiv, 1900, p. 44; id., Rev. Russ. Ent. x, 1910, p. 215.

TYPE, *Chætobrosacus anomalus* Chaud. (India.)

Body apterous, glabrous.

The solitary species was originally described as a *Brosacus*, of which genus it presents the main characters, though with a few important differences. The temporal ridge is rudimentary

and there are three or four supraorbital setæ, of which the hindmost is distant from the eye, the tooth of the mentum is neither cleft nor sulcate, the submentum has three setæ on each side, joint 1 of the antennæ is slightly longer than 3 and 2 hardly shorter than 4, the apical joints, though twice as long as wide, submoniliform, the pubescence commencing at the apex of joint 3. The prothorax differs in having numerous (4 to 7) lateral setæ. The elytra are regularly oval, only moderately convex, and without scutellary striae. The prosternal process is not furrowed. The apical segment of the venter has two setæ on each side in both sexes. The upper surface of the tarsi is clothed rather sparingly with long setæ, and in the ♂ protarsi only the first two joints are dilated.

Range. North India.

Nothing whatever is known of the life-history.

267. *Chætobrosceus anomalus*, *Chaud.* [Plate IV, fig. 9.]

Brosceus anomalus Chaudoir *, Bull. Mosc. 1878, ii, p. 1.

Chætobrosceus anomalus Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 21, t. 2, f. 3; Jedlička, in Visser, Karokorum, i, 1935, p. 270.

Colour black, surface moderately shiny.

Head with only a rudimentary neck constriction; eyes small and not prominent; genæ as long as eyes and projecting nearly as far laterally, sloping very gently to neck; frontal furrows wide, moderately deep, bounded outwardly on each side by a carina; a few fine punctures usually present on the neck and in the frontal furrows. *Prothorax* cordate, convex, basal constriction obsolete, about a fourth wider than head and as much wider than long, very little contracted in front, the apex a half wider than base, strongly contracted behind, gently rounded in front, sinuate at a little before base, the hind angles right but blunt, the hind seta placed just before base, the others disposed mainly along the front half; median line fairly deep on disk, transverse impressions very shallow, basal foveæ small but fairly deep, close to the angles, surface practically impunctate, though one or two minute pores are sometimes visible along the base. *Elytra* with the border terminating opposite stria 6, a fourth wider than prothorax, three-fifths longer than wide; striae finely punctate, sometimes clearly impressed and visible throughout, sometimes formed almost entirely by the fine punctures and obsolete at sides and behind, intervals flat, without dorsal pores. Microsculpture isodiametric, very distinct on the elytra, ill defined on the head and prothorax.

Sterna: sides of mesosternum punctate, the underside otherwise impunctate; metepisterna a half longer than wide.

Length, 12-14 mm.; *width*, 4.5-5 mm.

Distribution. PUNJAB: Lahul, Spiti, and Rotong Valley (*G. Babault*); Seraj, Jalori Pass, 10,800 feet (*H. G. Champion*). KASHMIR: Nagabaran, 10,000 feet (*H. B. Bion*); Baltal (*E. C. Ansorge*); Tragbul Pass, Gilgit Road, 10,800 feet (*A. Alcock*); Khelanmarg, 10,000 feet (*T. B. Fletcher*); Gulmarg (*M. Cameron*); Shishram Nag, 12,000 feet, and Lidarwat, 9000 feet, both in the Lidar Valley (*B. M. Bhatia*); Goorais Valley, 7000 feet (*J. H. Leech*); Sind Valley (*J. A. Sillem*). CHAMBA: Dalhousie (*C. Somers Smith*). BASHAHR: Sionrin behind Chini (*W. G. N. van der Sleen*).

Type in Mr. René Oberthür's collection.

There is a specimen in the British Museum labelled "Sikkim," but I suspect an error here.

Genus **BROSCOSOMA**.

Broscosoma Rosenhauer, *Broscosoma und Laricobius, zwei neuen Käfergattungen* (Erlangen), 1846, p. 1; Putzeys, *Carab. gen. nov.* 1846, p. 1; Lacordaire, *Gen. Col.* i, 1854, p. 242; Putzeys, *Les Broscides*, *Stett. Ent. Zeit.* 1868, p. 353; Semenow, *Hor. Soc. Ent. Ross.* xxxiv, 1900, pp. 77 and 80.

TYPE, *Broscosoma baldense* Rosenh. (Europe.)

The characters of this genus are mainly those of *Broscus*, but with one or two striking differences, including quite a different facies, as shown in the illustrations. *Head* with the temporal ridge wanting or visible only on the hind part of the neck, which is strongly constricted, clypeal suture fairly deep, mandibles long and sharp at apex, tooth of mentum short, triangular, not sulcate, submentum with a pair of setæ on each side, apical joint of the maxillary palpi evidently longer than the penultimate, antennæ extending beyond the base of the elytra, joint 1 stout, a little shorter than 3, 2 very short, the rest about two-thirds as long as 3, pubescent from joint 5, but 3 and 4 are setulose at apex. *Prothorax* strongly constricted just before base, the front part ovoid, very convex, without lateral border, and with a single seta on each side, placed just before middle. *Elytra* convex, oval or ovate, striæ (except 1) never more than lightly impressed in the Indian species, the scutellary striae wanting. Microsculpture variable. Last ventral segment with a single seta on each side in both sexes (Indian species). Protarsi of ♂ with three dilated joints.

Range. Europe. India. China. Japan.

Very few species are known, and each of these seems to be restricted to a very small area. Nothing is known of the early stages.

Key to the Species.

- 1 (2) Body winged; neck constriction evidently punctate, joint 1 of the antennæ twice as long as 2; prothorax with very large lateral pores; elytra with evident shoulders, a microsculpture present; metepisterna more than twice as long as wide. Colour of upper surface bluish green *ribbei*, Putz., p. 45.
- 2 (1) Body apterous; neck constriction almost impunctate, joint 1 of the antennæ barely a half longer than 2; prothorax with small lateral pores; elytra without shoulders, no microsculpture present. Colour of upper surface faintly æneous *gracile*, Andr., p. 46.

268. *Brosocosoma ribbei*, Putz. [Plate II, fig. 5.]

Brosocosoma ribbei Putzeys*, Stett. Ent. Zeit. 1877, p. 100;
 Semenow, Hor. Soc. Ent. Ross. xxxiv, 1900, p. 86 (note 22);
 Andrewes, Trans. Ent. Soc. Lond. 1922, p. 249.

Colour of the upper surface brilliant bluish green, under-side and femora black, joints 1 and 2 of the antennæ, palpi, tibiæ, and tarsi ferruginous, rest of antennæ brown.

Body winged, glabrous.

Head with a moderately deep constriction behind the eyes, which are small but fairly prominent; genæ a little shorter than eyes, sloping gently to neck; frontal furrows shallow, uneven, diverging behind; temporal ridges visible on the neck; surface with some vague cross-striation, a few punctures in the furrows and constriction. *Prothorax* quite a third wider than head, as long as wide, base and apex of equal width, adjoining the peduncle and neck respectively, so that the angles are quite inconspicuous, the lateral pore on each side very large; median line rather shallow, front transverse impression obsolete at middle, fairly deep close to the angles, surface smooth and polished, with a little vague cross-striation, basal area closely and rather coarsely rugose-punctate. *Elytra* ovate, the shoulders evident though rounded, about two-fifths wider than prothorax, rather less than a half longer than wide, the border not quite reaching the peduncle; stria 1 moderately deep and vaguely crenulate, 2 and sometimes 3 very lightly impressed, the other striae generally traceable under magnification on the basal half by the fine lines of puncture, 8 impressed quite close to apex, a setiferous pore close to base on stria 2 and two close to apex approximately on striae 3 and 5, surface smooth and polished, an isodiametric microsculpture quite visible on the elytra but hardly traceable on the head or prothorax.

Sterna : prosternal process furrowed, metasternal process bordered and somewhat dilated, metepisterna more than twice as long as wide. Underside impunctate.

Length, 10–10.5 mm.; *width*, 3.75–4.25 mm.

Distribution. BENGAL : Darjeeling; Mungphu. SIKKIM : Tonglu, feet 10,000 (*H. Stevens*); Gnatong; Dzalong; Debrepani, 6000 feet (*J. C. M. Gardner*). TONG-KING.

Type in the Stettin Natural History Museum.

269. *Broscosoma gracile*, *Andr.*

Broscosoma gracile Andrewes, *Eos*, iii, 1927, 72, f. 6.

Colour black, the upper surface faintly æneous and very shiny; antennæ and legs piceous brown, palpi a little lighter.

Body apterous, glabrous.

Head with a deep constriction behind the eyes, which are rather flat; genæ evident but very oblique, a little shorter than eyes; frontal furrows short but moderately deep, joined in front by the clypeal suture; temporal ridges obsolete; surface

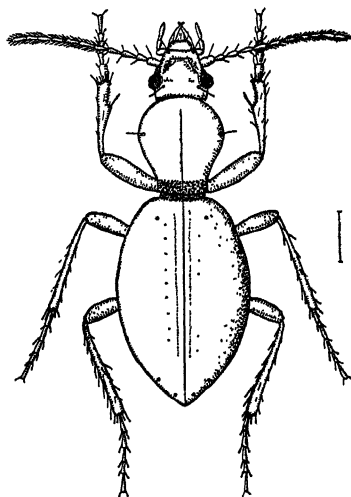


Fig. 3.—*Broscosoma gracile* Andrewes.

polished, impunctate, with traces only of puncturation in the constriction. *Prothorax* two-fifths wider than head, slightly longer than wide, but otherwise almost exactly similar to that of *ribbei* except that the lateral pores are small and the front transverse impression is obsolete throughout. *Elytra* oval, the shoulders completely rounded away, a third wider than prothorax and twice as long as wide, the border not quite reaching the peduncle; stria 1 rather shallow, faintly

punctulate, not reaching either base or apex, 2 just visible on disk, rest wanting in the type though on a second specimen traces of one or two more striæ are visible, 8 just indicated, surface polished, the setiferous pores as in *ribbei*. No microsculpture.

Sterna as in *ribbei*, but the metepisterna are barely a half longer than wide, the underside impunctate.

Length, 8 mm.; *width*, 2.6 mm.

Distribution. SIKKIM: Gnatong and Kobong above Gnatong.

Type in my collection.

Group XVI. TRECHINI.

Numerous genera and species are comprised in this tribe, which is world-wide in its distribution, and six of the genera are met with in India, chiefly in the Himalayan region. The head is nearly always furnished with very deep frontal furrows, curving round behind and at some distance from the eyes, with two supraorbital setæ on each side (Indian species), the mandibles with a seta in the scrobe, the ligula 8-setose at apex, the paraglossæ usually slender and extending well beyond the ligula, the apical joint of the palpi pointed or, more rarely, very slender and more or less cylindrical, the penultimate joint of the labial palpi more or less setose, the antennæ pubescent throughout; the prothorax has two lateral setæ on each side and the elytra are with or without a recurrent striole. Metacoxæ contiguous.

Key to the Subgroups.

- 1 (4) Mandibles tridentate; palpi subulate; elytra without recurrent striole at apex. (Indian species.)
- 2 (3) Eyes pubescent, but not unusually prominent; penultimate joint of labial palpi with more than four setæ; elytra pluristriate, the border rounding shoulder and reaching stria 5, dorsal pores slight or even indistinguishable; protibiæ with an external spur at apex. (Small elongate, flat, pubescent insects, generally ferruginous, sometimes piceous.) PERILEPTIDES, p. 48.
- 3 (2) Eyes glabrous, very large and prominent; penultimate joint of labial palpi quadrisetose; elytra each with one deep sutural stria, connected with the marginal channel by a deep sulcus running along the base, dorsal pores very conspicuous; protibiæ without an external spur at apex. (A single Burmese species in the Indian region.) TRECHODIDES, p. 59.
- 4 (1) Mandibles bidentate; palpi not subulate; elytra with a recurrent striole present TRECHIDES, p. 61.

Subgroup I. *PERILEPTIDES*.

Four genera are comprised in this subgroup, but only two of them are found in India; the other two, containing each a single species, are found respectively in New Guinea and Madagascar. Of the two Indian genera one (*Neoblemus*) is confined to the Himalayas and Tong-king and the other (*Perileptus*) includes fairly numerous species, one of which is widely spread through the palæarctic region, while others occur in Yunnan, the Philippine Is., the Malay Archipelago, North and East Africa, and Madagascar.

Key to the Genera.

- 1 (2) Frontal furrows not widening out into a smooth impunctate area behind the clypeus; protibiæ not externally sulcate. Length not exceeding 3.6 mm. *PERILEPTUS*, p. 48.
- 2 (1) Frontal furrows widening out into a smooth impunctate area behind the clypeus; protibiæ externally sulcate. Length not less than 3.8 mm. *NEOBLEMUS*, p. 56.

Genus *PERILEPTUS*.

Perileptus Schaum, *Naturg. Ins. Deutschl.* i, 1860, p. 663; Putzeys, *Stett. Ent. Zeit.* 1870, pp. 9 and 362; Ganglbauer, *Käf. Mitteleur.* i, 1892, p. 185; Bedel, *Cat. rais. Col. N. Afr.* 1896, p. 82; Jeannel, *Tableau des espèces orientales*, *Ann. Mag. Nat. Hist.* (9) xii, 1923, p. 396; id., *Mon. des Trechinæ* (i), Abeille, xxxii, 1926, p. 402.

Blemus Dejean (not Stephens), *Spec. Gen.* v, 1831, p. 33; Castelnau, *Études Ent.* 1834, p. 94; id., *Hist. Nat. Col.* i, 1840, p. 155.

Ochtheophilus Nietner (not Mulsant and Rey), *Journ. As. Soc. Bengal*, xxvi, 1857, p. 275; id., *Ann. Mag. Nat. Hist.* (2) xx, 1857, p. 275; Jeannel, *Ann. Soc. Ent. Fr.* 1921 (1922), p. 165.

Pyrrhotachys Sloane, *Proc. Linn. Soc. N.S.W.* 1896, p. 374.

TYPE, *Carabus areolatus* Creutzer. (Palæarctic region.)

Body winged; form narrow and usually flat, with more or less parallel sides, the surface finely punctate, with a sub-erect pubescence.

Head wide, with large prominent pubescent eyes, narrowly separated from the buccal fissure; clypeus bisetose, divided by a transverse depression, the front part often bearing a tubercle, the hind part forming a transverse protuberant area; labrum emarginate, sexsetose, sometimes tuberculate, contracted at base; frontal sulci entire, narrow, deep, curved, and impunctate; mandibles fairly long and stout, tridentate; ligula narrow, truncate, free, with two long setæ on the under and six shorter ones on the upper surface, paraglossæ membranous, narrow, extending well beyond the ligula; mentum emarginate, with a short rounded tooth in the emargination, lobes externally rounded, pointed at apex, submentum

plurisetose; maxillæ with the outer lobe two-jointed, the inner one with comparatively few bristles; palpi with the apical joint subulate and very slender, penultimate joint of the maxillaries glabrous, somewhat dilated on the inner side, penultimate joint of labials setulose and dilated on the outside; antennæ as a rule nearly reaching middle of elytra, often dilated at apex, joints I and II about equal and a little longer than the others.

Prothorax cordate, base generally produced at middle, sides each with two lateral setæ, hind angles generally sharp and sometimes with a slight carina; median line deep, the other impressions usually slight.

Elytra flat or only moderately convex, generally with square shoulders and nearly parallel sides, border rounding shoulder and reaching stria 5, interval 5 being slightly raised at this point; striæ shallow, punctate, I entire and not bent backwards at apex along the border, scutellary striae slight; intervals nearly flat, two dorsal pores adjoining stria 3 at about a fifth and three-fifths, often indistinguishable from the punctures in the striæ, a third pore near apex. Microsculpture sometimes wanting, but usually there is a fine reticulation of isodiametric meshes on the elytra.

Sternum: prosternal process unbordered. *Legs* short, the protibiæ not externally grooved, tarsal joints short, 4 with a spine on the under surface extending forward between the claws, which are smooth, protarsi ♂ with two dilated joints.

Range. The species are not numerous, and are distributed throughout the Old World but not in America.

Nothing is known of the life-history of these insects, but the habitat of the Indian species is "river-banks." Nietner writes at the end of the description of his *P. ceylanicus*: "The habits of the insect are those of the *Bembidia*, in whose society it lives upon the banks of rivers, taking, like them, readily to its wings. I have found it occasionally in considerable numbers upon the sandy banks of the Mahá Oya in the neighbourhood of Negombo close to the edge of the water."

Key to the Species.

- 1 (8) Elytra flat, with square shoulders and nearly parallel sides. Length not less than 2.5 mm.
- 2 (7) Eyes large, genæ less than half as long as eyes, elytra not more than three-fourths longer than wide. Length not exceeding 3.2 mm.
- 3 (4) Prothorax with base hardly narrower than apex and scarcely produced, the hind angles right and not projecting laterally; microsculpture present on the elytra

robustus, Jeann., [p. 50.]

- 4 (3) Prothorax with its base evidently produced, a sixth narrower than apex, the hind angles slightly acute and projecting a little laterally.
- 5 (6) Prothorax with its sides moderately dilated and rounded behind the front angles, elytra pale at apex, striæ 6 and 7 obsolete; microsculpture present on the elytra [p. 51.
ceylanicus, Nietn.,
- 6 (5) Prothorax with its sides strongly dilated and rounded behind the front angles, elytra dark at apex, striæ 6 and 7 distinct; no microsculpture. *imaicus*, Jeann., p. 53.
- 7 (2) Eyes small, genæ two-thirds as long as eyes, elytra fully twice as long as wide; microsculpture present on the elytra. Length 3.6 mm. *microps*, sp. nov., p. 54.
- 8 (1) Elytra moderately convex, oval. Length less than 2.5 mm.
- 9 (10) Prothorax with its base two-thirds as wide as apex, a small but distinct carina in the hind angles, elytra with a dark patch at apical third, without microsculpture. Length 2.45 mm... *cameroni*, Jeann., p. 54.
- 10 (9) Prothorax with its base three-fourths as wide as apex, only a rudimentary carina in the hind angles, elytra uniformly ferruginous, a microsculpture present. Length 2.1 mm. [p. 55.
birmanicus, Jeann.,

270. *Perileptus robustus*, Jeann.

Perileptus robustus Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 397 and 398, f. 1; id., Mon. (i) p. 415, f. 190.

Colour ferruginous; joints 4 to 11 of the antennæ, lateral margins of the prothorax and elytra, metasternum, and ventral surface black. Pubescence somewhat scanty and inconspicuous.

Head fairly large, with deep curved impunctate furrows extending from front to back; clypeus with a small central tubercle; labrum practically without tubercle; eyes large and prominent, three times as long as genæ; antennæ stout, not quite reaching middle of elytra. *Prothorax* moderately convex, cordate, a little wider than the head, a third wider than long, base slightly produced at middle, barely narrower than apex, sides rounded in front, gently sinuate before base, hind angles sharp, right, not projecting laterally, and with a rudimentary carina; median line wide and deep, the other impressions slight, base coarsely rugose-punctate, the disk moderately punctate. *Elytra* flat, with nearly parallel sides, about a third wider than prothorax, three-fifths longer than wide; striæ lightly impressed and finely punctate, 1 only reaching base and apex, 7 and 8 obsolete, intervals moderately

convex, dorsal pores somewhat indistinct, surface very finely and sparsely punctate. Microsculpture of the elytra formed by isodiametric meshes, none on the head and prothorax.

Length, 2.8–2.9 mm.

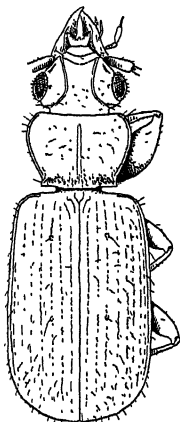


Fig. 4.—*Perileptus robustus* Jeannel.

Distribution. UNITED PROVINCES: Garhwal, Siuni Gad; West Almora; Ranikhet (all *H. G. Champion*).

Type in the British Museum.

271. *Perileptus ceylanicus*, *Nietn.*

Ochtheophilus ceylanicus Nietner *, Journ. As. Soc. Beng. xxvi, 1857, p. 136; id., Ann. Mag. Nat. Hist. (2) xx, 1857, p. 276.

Perileptus ceylanicus Putzeys, Stett. Ent. Zeit. 1870, p. 363; Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 397 and 401, f. 3; id., Mon. (i) p. 416, f. 191; Andrewes, Ann. Mag. Nat. Hist. (9) xix, 1927, p. 106.

Perileptus indicus Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 397 and 399, f. 2; Andrewes, Ent. Month. Mag. 1926, p. 68; Jeannel, Mon. (i) p. 417; id., Mon. (iv), Abeille, xxxiv, 1930, p. 62.

Colour ferruginous, head and underside a little darker, joints 3 to 11 of the antennæ brownish, lateral margins and suture of the elytra at least to some extent fuscous. Pubescence sparse but not very short.

Head large, with deep curved impunctate furrows; clypeus with a slight central tubercle, labrum with a more conspicuous one; eyes large, genæ very short, curving round sharply to the neck; antennæ a little dilated at apex, nearly reaching middle of elytra, surface with very scanty pubescence. *Prothorax* moderately convex, cordate, barely wider

than head, a fourth wider than long, base produced at middle, its sides both oblique and slightly emarginate, about a sixth narrower than apex, sides rounded in front, rather sharply sinuate close to base, the hind angles sharp, a little acute, and projecting slightly laterally, with hardly a rudiment of a carina; median line moderately deep, the surface surrounding it usually depressed, transverse impressions slight, basal foveæ small, surface finely and fairly closely punctate, basal area subrugose. *Elytra* flat, with nearly parallel sides, slightly compressed behind shoulders, a fourth wider than prothorax, nearly three-fourths longer than wide; striæ finely punctate, shallow, 1 deeper behind, 2 to 5 distinct on disk, disappearing before apex, outer striæ obsolete, intervals slightly convex, 1 raised behind, dorsal pores distinct, surface finely and not very closely punctate. Microsculpture as in *robustus*.

Length, 2.5-3.2 mm.

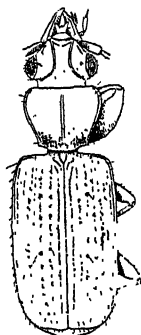


Fig. 5.—*Perileptus ceylanicus* Nietner. (The figure is that of *P. indicus* Jeannel.)

Distribution. BOMBAY: Poona (*G. E. Bryant*). UNITED PROVINCES: Dehra Dun and Raipur Forests (*M. Bose*); Asan River (*J. C. M. Gardner*); Nim Nadi (*M. Cameron*); Mothrawala, Rispana River; Phandowala, Suswa River, West Almora, Haldwani, Tanakpur, Ranikhet, Sarju Valley, Bodyar, and River Song (*H. G. Champion*). SIKKIM: Gielle Khola in the Tista Valley (*H. Stevens*). EASTERN DUARS (*H. Stevens*). ASSAM: Garo Hills, Someswari River (*S. W. Kemp* and *B. Chopra*); Manipur, Shugnu (*S. N. Chatterjee*). BURMA: Tavoy (*R. N. Parker*). CEYLON: Negombo, Mahá Oya River (*J. Nietner*).

Type. The specimen treated here as the type is the only Singhalese example seen; it was taken by Nietner in Ceylon and is now in the Stettin Museum, where it is marked as having been "seen by the author." The type of *indicus* is in the British Museum.

The only difference I have been able to detect between *ceylanicus* and *indicus* is in the antennæ. In the Indian form these are long, with the apical joints sometimes brown, sometimes nearly black; in the Poona specimen the antennæ (except joints 1 and 2) are unfortunately missing, but in the Stettin example, which is no doubt the specimen from the Dohrn collection mentioned by Putzeys, the antennal joints are somewhat shorter and rather lighter in colour. Nietner in his description says that the antennæ are "long and thick," but he does not expressly refer to their colour.

272. *Perileptus imaicus*, Jeann.

Perileptus imaicus Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 397 and 405, f. 6; id., Mon. (i) p. 425, f. 201.

Colour piceous beneath, upper surface dark red; apex and lateral margins of the elytra, with joints 4 to 11 of the antennæ, piceous or black; palpi, joints 1 to 3 of the antennæ, apical border of the elytra, and legs more or less ferruginous. Pubescence sparse but formed by fairly long hairs, and therefore fairly conspicuous.

Head large, with deep curved impunctate furrows; both clypeus and labrum with a slight central tubercle; eyes large, genæ nearly half as long and curving round sharply to neck; antennæ reaching middle of elytra, slightly dilated at apex; surface very sparsely punctate. *Prothorax* moderately convex, cordate, a little wider than head, about a third wider than long, base strongly produced at middle, its sides emarginate, about a sixth narrower than apex, widest at about a fifth from apex, front angles strongly rounded, sides rounded in front, contracted sharply behind, and sinuate close to the hind angles, which are sharp, slightly acute, project a little laterally, and are furnished each with an evident carina; median line fairly wide and deep, basal foveæ fairly deep and continued forward on each side as a shallow sulcus, parallel with the sides, disk finely and sparsely punctate, the sides more closely and irregularly, the base rugose-punctate. *Elytra* flat on disk, moderately convex at sides, which are nearly parallel, a third wider than prothorax, two-thirds longer than wide; striæ well marked by very clear punctures, but disappearing behind, except 1, which is rather deep towards apex, 8 only obsolete, intervals practically flat, finely and sparsely punctate, the dorsal pores hardly distinguishable from those in the striæ. No appreciable microsculpture.

Length, 2.5-3.1 mm.

Distribution. PUNJAB: Khotkai (C. F. C. Beeson). BENGAL: Gopaldhara and Rongni Valley (H. Stevens). EASTERN DUARS (H. Stevens). ASSAM: Manipur, Shugnu (S. N. Chatterjee).

UNITED PROVINCES : West Almora and Upper Gumti Valley (*H. G. Champion*) ; Almora, Dwarahat (*R. N. Parker*) ; Garhwal, Siuni Gad (*H. G. Champion*) ; Chakrata, Sainja (*M. Cameron*), and Binal Gad (*S. N. Chatterjee*).

Type in the British Museum.

273. *Perileptus microps*, sp. nov. [Plate I, fig. 4.]

Colour ferruginous, lateral borders of prothorax and elytra piceous. Pubescence short and rather scanty.

Head large, with deep curved impunctate furrows, surface subrugose at sides ; clypeus and labrum each with a fairly conspicuous tubercle ; eyes moderately prominent but rather small, the genæ consequently more conspicuous than usual, convex, and about two-thirds as long as eyes ; antennæ stout, not quite reaching middle of elytra. *Prothorax* a little convex, cordate, just wider than head and also slightly wider than long, base somewhat arcuate, a fifth narrower than apex, sides gently rounded and sinuate near base, the hind angles sharp but somewhat obtuse, not projecting laterally, and without carina ; median line moderately wide and deep, a small rounded impression at middle on each side of it, the other impressions slight, disk moderately punctate, base rugose-punctate along the margin. *Elytra* long and flat, with square shoulders and nearly parallel sides, a fourth wider than prothorax, quite twice as long as wide ; striæ 1 to 5 lightly impressed and finely punctate, 6 to 8 obsolete, 1 only reaching apex and becoming obsolete before reaching base, intervals rather flat, dorsal pores visible though inconspicuous, surface finely and sparsely punctate. Microsculpture as in *robustus*.

Length, 3.6 mm.

Distribution. UNITED PROVINCES : Dehra Dun (*J. C. M. Gardner*).

Type in the British Museum.

274. *Perileptus cameroni*, Jeann.

Perileptus cameroni Jeannel*, *Ann. Mag. Nat. Hist.* (9) xii, 1923, pp. 397 and 407, f. 7 ; *id.*, *Mon.* (i) p. 427, f. 205.

Colour light ferruginous, the elytra each with a vague dark patch at apical third, apical fourth of elytra and legs flavous, the border of both prothorax and elytra darker. Pubescence pale, formed by rather long hairs, scanty on the head and prothorax, arranged on the elytra in single lines, inclined backwards down the middle of each interval.

Head fairly large, almost impunctate, the furrows deep and subangulate at mid-eye level ; clypeus and labrum without tubercle ; eyes large and prominent, genæ very short, oblique ;

antennæ stout, moniliform, dilated towards apex, reaching basal fourth of elytra. *Prothorax* convex, cordate, about a sixth wider than head and as much wider than long, base truncate, about two-thirds as wide as apex, sides strongly rounded in front, sinuate a little before base, the hind angles sharp but slightly obtuse, not projecting laterally, and with a small but evident carina at right angles to the base; median line deep, widening behind, base depressed, coarsely rugose-punctate, disk rather sparsely punctate, with punctures of unequal size. *Elytra* convex, oval, slightly compressed at middle, a fourth wider than prothorax, three-fifths longer than wide; striæ lightly impressed but clearly punctate, 1 only entire and nearer the suture at extremities than at middle, the outer striæ indicated mainly by irregular punctures;

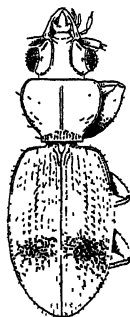


Fig. 6.—*Perileptus cameroni* Jeannel.

intervals faintly convex, dorsal pores hardly distinguishable from the punctures in stria 3. No appreciable microsculpture.

Length, 2.45 mm.

Distribution. UNITED PROVINCES: Dehra Dun, Kaligad (*M. Cameron*). BENGAL: Ghum district (*M. Cameron*). ASSAM: Manipur, Shugnu (*S. N. Chatterjee*).

Type in the British Museum.

This species differs a good deal from the other Himalayan species in the convexity of its form, in its oval elytra with a single line of setæ down the middle of each interval, and the dark patch on each elytron.

275. *Perileptus birmanicus*, Jeann. [Plate I, fig. 2.]

Perileptus birmanicus Jeannel*, Mon. (iv), Abeille, xxxiv, 1930, p. 62.

Colour ferruginous, the prothorax paler than the head and elytra, apex of antennæ, border, base, and apex of prothorax,

and border of elytra more or less brown. Pubescence very scanty.

Head large, with deep curved furrows; clypeus with a small tubercle, but none on labrum; eyes large, genæ very short and inconspicuous; antennæ submoniliform, dilated at apex, reaching middle of elytra. *Prothorax* convex, cordate, a sixth wider than head, a fourth wider than long, base only a little produced at middle, its sides slightly oblique, a fourth narrower than apex, sides well rounded in front, strongly contracted behind, sinuate close to base, hind angles right, sharp, projecting a little laterally, with a rudimentary carina; median line deep and wide, base a little depressed, rugose-punctate, surface generally sparsely and irregularly punctate. *Elytra* moderately convex, a fourth wider than prothorax, a little more than a half longer than wide; striæ lightly impressed, punctate, the five inner ones distinct, 6 indicated by one or two punctures towards base, 7 and 8 wanting, 1 only reaching base and apex, intervals slightly convex, 1 raised behind, an irregular line of minute punctures down the middle of each, dorsal pores indistinct. Microsculpture as in *robustus*.

Length, 2.1 mm.

Distribution. BURMA: Shwebo division, Kyauktan (*H. G. Champion*).

Type in the British Museum. The type is at present unique.

Genus **NEOBLEMUS**.

Neoblemus Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 409; id., Mon. des Trechinae (i), Abeille, xxxii, 1926, p. 432.

TYPE, *Neoblemus championi* Jeannel. (Himalayas.)

Body winged, rather sparsely pubescent, similar in appearance to *Perileptus*, but the sulci on the head are of a different form and the protibiæ are externally grooved.

Head large; eyes as in *Perileptus*; clypeus transverse, convex, slightly arcuate in front (convex forwards) and more strongly arcuate behind (convex backwards); frontal sulci entire, wide, deep, impunctate, curving on each side from the lateral extremity of the clypeus to a point behind the gena, widening out into a smooth impunctate area behind the clypeus; labrum deeply emarginate, sexsetose, sometimes tuberculate, contracted at base; mentum with a tooth of moderate size in the emargination, rounded or truncate at apex; buccal organs as in *Perileptus*; antennæ long and filiform, extending beyond the middle of the elytra, joints 2 and 4 a little shorter than the rest. *Prothorax* and *elytra* hardly differing from the same parts in *Perileptus*, but there is no evident microsculpture present. *Legs* with protibiæ

straight, slender, and externally grooved, the spine on the underside of tarsal joint 4 and the dilated joints in the ♂ protarsi as in *Perileptus*.

Range. The Himalayas and Tong-king.

Key to the Species.

- | | |
|---|---------------------------------------|
| 1 (2) Genæ only slightly convex, shorter than eyes; elytra brown-red with dark apex, the puncturation of the striæ distinct; protibiæ with a deep external groove | [p. 57.
<i>championi</i> , Jeann., |
| 2 (1) Genæ very convex, longer than eyes; elytra ferruginous, the puncturation of the striæ indistinct; protibiæ with a shallow external groove | [p. 58.
<i>andrewesi</i> , Jeann., |

276. *Neoblemus championi*, Jeann.

Neoblemus championi Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 410 and 411; id., Mon. (i) p. 434.

Colour reddish brown; metasternum, sides of head, sometimes disk of prothorax, margins, suture, and apical third of elytra piceous; legs and apical border of elytra ferruginous.

Head wide, eyes large and prominent, genæ shorter than eyes, slightly convex, contracting rapidly to the neck constriction, neck and convex area between the sulci impunctate, smooth, and shiny, the latter triangular, the apex of the triangle in front just reaching the clypeal suture, the genæ and clypeus covered rather sparsely with long hairs, very long behind, directed mainly inwards, labrum with a slight tubercle at middle. *Prothorax* cordate, slightly convex, as wide as head, a third wider than long, apex a third wider than base, sides reflexed, rounded in front and sinuate at about a fifth from base, the hind angles somewhat acute, sharp, projecting laterally, but not reflexed; median line deep and wide but contracting at extremities, basal area rather coarsely rugose-punctate. *Elytra* flat, with parallel sides, a third wider than prothorax, two-thirds longer than wide; punctate-striate, the four inner striæ moderately impressed on disk but not quite reaching base, 5 visible, the outer striæ obsolete, 1 reaching apex, 2 to 4 disappearing before apex; intervals a little convex on disk only, dorsal pores on stria 3, placed not far from base, and just behind middle, surface shortly pubescent and finely punctate, the punctures smaller than those in the striæ. *Legs*: protibiæ with a deep external groove.

Length, 3.8-4.2 mm.

Distribution. UNITED PROVINCES: Mussooree, Mossy Falls (*M. Cameron*); Dehra Dun (*M. Cameron* and *S. N. Chatterjee*), Raipur Forests (*M. Bose*), and Nagal; West Almora, Upper

Gumti Valley, and Haldwani (all *H. G. Champion*). **BENGAL** : Gopaldhara and Namsoo (*H. Stevens*). **EASTERN DUARS** (*H. Stevens*).

Type in the British Museum.

277. *Neoblemus andrewesi*, Jeannel.

Neoblemus andrewesi Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 410 and 413, f. 9 ; id., Mon. (i) p. 436, ff. 222 and 223.

Colour ferruginous, legs pale ferruginous.

Head large ; eyes rather small but moderately prominent ; genæ convex, rather longer than eyes, sulci not quite so deep as in *championi*, the apex of the convex area on front not quite reaching the clypeal suture, the whole surface except the sulci sparsely punctate and pubescent, but less conspicuously

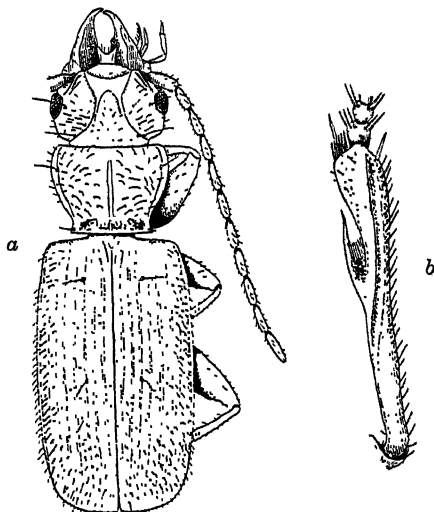


Fig. 7.—(a) *Neoblemus andrewesi* Jeannel ; (b) external aspect of right protibia.

than in *championi* ; labrum without tubercle. *Prothorax* cordate and slightly convex, a little wider than head and a third wider than long, very similar to that of *championi*, but the lateral margins are less reflexed, the median line is rather shallower, the transverse impressions are more evident, and the basal area is less coarsely rugose-punctate. *Elytra* flat, with nearly parallel sides, a third wider than prothorax and fully three-fourths longer than wide ; striation and surface

as in *championi*, but the puncturation of the striæ is very indistinct. *Legs*: protibiæ with a shallow external groove.

Length, 3.8-4.6 mm.

Distribution. UNITED PROVINCES: Dehra Dun, River Song (*S. N. Chatterjee* and *M. Cameron*); Haldwani (*H. G. Champion*).

Type in the British Museum.

Subgroup II. *TRECHODIDES*.

Of the nine genera which form this subgroup only one occurs in the Indian region, and that is represented in Eastern Asia by one species found in northern Burma and another one in the mountains of the Philippine Is. Other species of this genus inhabit Australia, Madagascar, and South Africa, and those of the other eight genera are nearly all distributed in the same regions, though one has been discovered as far south as the Crozet Is. and one occurs in Europe, examples of which have been met with, though very rarely, in England.

Genus *TRECHODES*.

Trechodes Blackburn, Trans. Roy. Soc. S. Austr. xxv, 1901, p. 119; Jeannel, Mon. des Trechiniæ (i), Abeille, xxxii, 1926, p. 484.

TYPE, *Trechodes secalioides* Blackburn. (Australia.)

Body winged, form and general appearance those of the species of *Tachys* belonging to the *fasciatus*-group.

Head with large hemispherical glabrous eyes, very narrowly separated from the buccal fissure; clypeus transverse, quadrisetose; labrum transverse though rather narrow, its sides nearly parallel, apex sexsetose and deeply emarginate; frontal sulci impunctate, entire, narrow but deep, approaching each other most nearly at mid-eye level, thence bending outwards and terminating on each side behind the genæ; mandibles fairly stout, tridentate, hooked at apex; ligula narrow, rounded at apex, with two long setæ at middle and three shorter ones on each side, paraglossæ membranous, very narrow, and extending well beyond the ligula; mentum emarginate and with a blunt tooth in the emargination, a pair of setæ at the base of the tooth, submentum quadrisetose; palpi with the apical joint subulate and very slender, penultimate joint of the labials with four or five setæ, two of them placed on the inner margin towards apex; antennæ nearly reaching middle of elytra, joint 2 shorter than the rest, the apical joints long and slender.

Prothorax subcordate, transverse, the median third of the base rather strongly produced, sides bisetose, well rounded in front and strongly contracted behind, front angles rounded

away, hind ones small but somewhat variable, the normal impressions not more than moderately deep.

Elytra subquadrate, moderately convex, basal border entire, only stria 1 and part of stria 8 present, the apical and the two dorsal pores large and isolated, so that they stand out very distinctly.

Legs rather short, the protibiæ externally grooved, fourth tarsal joint with a slight membranous expansion beneath, protarsi ♂ with two strongly dilated joints.

Range. Burma, Philippine Is., Australia, Madagascar, and Africa.

278. *Trechodes cauliops*, Bates.

Trechus cauliops Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 298.

Trechodes cauliops Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 415, f. 10; id., Mon. (i) p. 490, ff. 262-3, and p. 494, f. 271.

Colour piceous, antennæ and elytra near apex reddish brown, palpi and legs flavous.

Head fairly wide, front depressed; eyes very prominent, hemispherical; genæ oblique, shorter than eyes; frontal

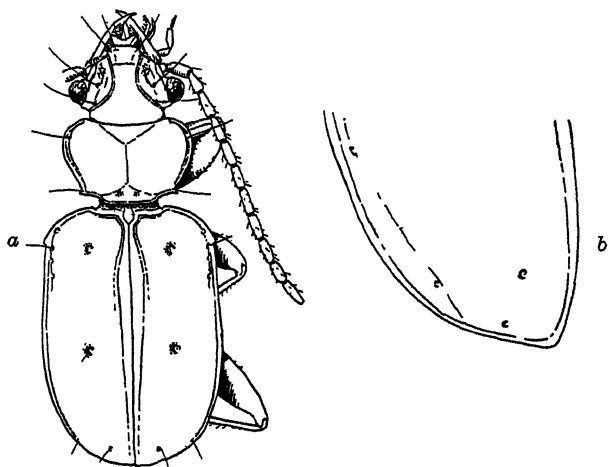


Fig. 8.—(a) *Trechodes cauliops* Bates; (b) apex of left elytron.

sulci entire, curved, impunctate, deep, almost linear; clypeal suture deep; front supraorbital pore very large, sides between the sulcus and the eye somewhat hollowed out and uneven; surface impunctate. *Prothorax* convex, about a fourth wider than head, two-thirds wider than long, base rather wider than

apex, the median lobe short, bordered, somewhat arcuate, sides strongly rounded in front, hind angles projecting on each side as a rounded tooth, on which is the hind lateral pore; median line and front transverse impression shallow, marginal channel wide, terminating on each side at the hind lateral pore, basal sulcus deep, almost interrupted at middle, surface impunctate. *Elytra* moderately convex, a third wider than prothorax, not quite a half longer than wide, border with a tooth on each side just below the shoulder; stria 1 is very deep and 2 just visible, 8 widely interrupted at middle, the pores of the marginal series very conspicuous in front and behind, the sutural interval a little raised and widening out on disk, front dorsal pore placed midway between striae 1 and 8, the hind pore nearer stria 1. No microsculpture.

Length, 3.6 mm.

Distribution. BURMA: Karen Hills (*L. Fea*).

Type in the Genoa Civic Museum.

This is the only species known from the Indian region, and only one other species is known from the Oriental region, viz., *T. bakeri* Jeann. from the Philippine Is.

Subgroup III. *TRECHIDES*.

This subgroup contains a large number of genera and subgenera, with an enormous number of species, which people nearly all the mountain ranges of the holarctic region together with those of Abyssinia and East Africa. In some genera, the species of which live more or less in the open, the eyes are well developed, but there are also numerous cavernicolous genera in which the eyes are rudimentary or wanting. No species of the latter group has been found in any of the Indian caves hitherto explored, so that all those dealt with here have well developed eyes. Three genera occur in India, and may be distinguished as follows:—

Key to the Genera.

- | | |
|---|----------------------|
| 1 (2) <i>Elytra</i> each with two dorsal pores; protibiae glabrous at apex. (Indian species.) | TRECHUS, p. 62. |
| 2 (1) <i>Elytra</i> each with one dorsal pore; protibiae with at least a few small hairs at apex. | |
| 3 (4) Body winged; eyes large, genae small and inconspicuous; prothorax not much contracted behind; <i>elytra</i> with deep striae and fairly prominent shoulders. | AGONOTRECHUS, p. 74. |
| 4 (3) Body apterous; eyes small and flat, genae large and convex; prothorax strongly contracted behind; <i>elytra</i> with rudimentary striae, only the inner ones visible, shoulders almost effaced. | STEVENSUS, p. 78. |

Genus **TRECHUS**.

Trechus Schellenberg, Helv. Ent. ii, 1806, p. 23; Dejean, Spec. Gen. v, 1831, p. 2; Pandellé, in Grenier, Mat. Faune Col. Fr. ii, 1867, p. 131; Putzeys, Trechorum oculatorum Monographia, Stett. Ent. Zeit. xxxi, 1870, p. 7; Ganglbauer, Käf. Mitteleur. i, 1892, p. 186; Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 415; id., Mon. des Trechiniæ (ii), Abeille, xxxii, 1927, p. 114; id., Mon. (iii), Abeille, xxxv, 1928, p. 790.
Blemus Stephens, Ill. Brit. Ent. Mand. i, 1827, p. 67, and 1828, p. 171.

TYPE, *Carabus quadristriatus* Schrank. (Palæarctic region.)

Body winged or apterous, moderately convex, glabrous, colour black, red, or ferruginous.

Head with the frontal furrows entire and deep, diverging in front and behind (Indian species), sometimes obtusely angulate at middle; eyes generally large in relation to the genæ, narrowly separated from the buccal fissure; clypeus transverse, quadrisetose; labrum generally emarginate, sex-setose; mandibles fairly stout, bidentate; ligula subquadrate, convex at apex, 8-setose, two long setæ at middle and three shorter ones on either side, paraglossæ narrow, tapering, extending far beyond ligula; mentum emarginate and with a bifid tooth in the emargination (except *indicus*), a pair of setæ beneath the tooth, submentum quadrisetose; palpi with the last two joints approximately equal, the apical joint tapering to a blunt point, the penultimate tapering towards base, the apex of the latter sometimes with one or two fine setæ in the maxillaries, quadrisetose in the labials; antennæ variable but often submoniliform, at least towards apex, in the Indian species.

Prothorax subquadrate, contracted behind, sides rounded in front and sometimes sinuate behind, bisetose; median line fairly deep, front transverse impression often obsolete, base depressed, basal sulcus and foveæ variable but usually deep.

Elytra of variable form, the shoulders conspicuous in the winged but effaced in the wingless species, border rounding shoulder and reaching a point opposite stria 5; striæ often obsolete at the sides and behind, the inner ones generally fairly deep on disk, 1 and usually 2 entire, scutellary striae generally well developed, a deep recurrent striae at apex which terminates opposite though often without reaching the extremity of stria 5; intervals smooth and impunctate, more or less convex on disk; 2 widening out close to apex, 3 nearly always with two dorsal pores adjoining stria 3, a third pore near apex. Microsculpture only slightly developed.

Legs rather slender, the femora sometimes dilated, the

protibiæ nearly always externally grooved, the protarsi ♂ with two dilated joints.

Range. Numerous species of this genus have been described, distributed through the palæarctic and nearctic regions, the Mediterranean basin, the Himalayas, and the Philippine Is., the great majority being found in the great mountain chains of the Old World, sometimes at high altitudes. Until comparatively recently only a single species had been found in the Himalayas, but as this vast chain of mountains is more fully explored it seems certain that many more species will be discovered there.

The larvæ of a number of palæarctic species have been described, but nothing is known regarding the life-history of the Indian species, specimens of which have been found generally in damp places, under moss, or near streams.

Key to the Species.

- 1 (6) Body winged; eyes large and prominent, much longer than genæ; elytra with prominent shoulders.
- 2 (5) Eyes four times as long as the genæ; ædeagus tapering, elongate, and hooked at extremity (see illustration).
- 3 (4) Colour brown or piceous, sometimes slightly iridescent *indicus*, Putz., p. 64.
- 4 (3) Colour black, iridescent *indicus* var. *championi*,
- 5 (2) Eyes six times as long as the genæ; ædeagus thick and only slightly hooked at extremity (see illustration) [Jeann., p. 65.
- 6 (1) Body apterous. *macrops*, Jeann., p. 67.
- 7 (8) Eyes large and prominent, three times as long as genæ; elytra with evident shoulders. Colour red, surface very shiny [Jeann., p. 66.
- 8 (7) Eyes less prominent and often flat, never much longer than genæ; elytra oval, the shoulders more or less effaced. *indicus* var. *macroderus*,
- 9 (14) Elytra with striæ 1 to 3 at least moderately impressed. Fairly large species, rarely less than 4 mm. in length.
- 10 (13) Head with the frontal furrows regularly curved; microsculpture of the elytra barely visible. Colour mainly piceous.
- 11 (12) Prothorax a half wider than head, its base a little wider than apex, the basal foveæ deep, separated on each side from the hind angles by a slight raised space; elytra with the three inner striæ only moderately impressed, but all the striæ visible. *imaicus*, Jeann., p. 68.

- 12 (11) Prothorax about a third wider than head, its base as wide as apex, the basal foveæ deep, almost adjoining hind angles; elytra with the three inner striæ deep, the outer ones obsolete [p. 69.
higstoni, Jeann.,
- 13 (10) Head with the frontal furrows angulate at middle; basal foveæ of the prothorax rounded and only moderately deep, not adjoining the hind angles; microsculpture of the elytra formed by fine transverse lines. Colour ferruginous, with the apical half or two-thirds of the elytra black *beesoni*, Jeann., p. 70.
- 14 (9) Elytra with striæ 1 to 3 at most lightly impressed. Rather small species, rarely attaining 4 mm. in length.
- 15 (20) Antennæ with joints 2 and 3 equal in length; elytra widest at middle, the outer striæ obsolete. Length rarely less than 3 mm.
- 16 (19) Head with the frontal furrows deep and curved, apical joints of the antennæ oval; prothorax with its base a little wider than apex, the basal foveæ small but deep.
- 17 (18) Elytra with the two inner striæ lightly impressed, striæ 3 to 5 visible *cameroni*, Jeann., p. 71.
- 18 (17) Elytra with the two inner striæ quite superficial, the other striæ obsolete... [Jeann., p. 72.
cameroni var. *bistriatus*,
- 19 (16) Head with the frontal furrows angulate at middle, apical joints of the antennæ subcylindrical; prothorax with its base as wide as apex, the basal foveæ obsolete..... [p. 72.
thibetanus, Jeann.,
- 20 (15) Antennæ with joint 2 shorter than 3; elytra widest behind middle, all the striæ visible. Length 2·8 mm. [p. 73.
pumilio, Jeann.,

279. *Trechus indicus*, Putz.

Trechus indicus Putzeys *, Mon. p. 175; Andrewes, Trans. Ent. Soc. Lond. 1922, p. 247; Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 416, f. 11; id., Mon. (ii) pp. 157 and 158; id., Ann. Mag. Nat. Hist. (10) i, 1928, p. 284; Andrewes, Trans. Ent. Soc. Lond. 1930, p. 3.

Colour brown or piceous, shiny, and slightly iridescent, the lateral margins of the prothorax and elytra generally a little paler than the disk; palpi, joint 1 of antennæ, and legs more or less flavous.

Body winged. *Head* with deep furrows, converging to mid-eye level, where they are obtusely angulate, and thence curving round on each side behind eyes; eyes fairly large and convex; genæ very small; antennæ reaching basal third of elytra, slightly dilated and submoniliform towards apex, the joints approximately equal, except 3 and 11, which are

a little longer than the rest; tooth of mentum slightly sulcate, but not bifid. *Prothorax* subquadrate, moderately convex, about a third wider than head and a half wider than long, base truncate, a little wider than apex, produced a little backwards at middle, sides rounded from apex to base, reflexed, narrowly in front, more widely behind, the hind angles right and sharp, projecting on each side as a minute tooth; median line fairly deep, basal sulcus deep, with three pores at middle (not always well defined), the foveæ moderately deep, diverging in front. *Elytra* suboval, convex, nearly three-fifths wider than prothorax, rather less than a half longer than wide, shoulders well marked, sides nearly parallel but widest a little behind middle; striæ entire, indistinctly punctate, 1 to 4 moderately impressed, 5 and 6 rather faint, 7 just visible, recurrent striae straight, fairly long and deep, ending opposite stria 6; intervals moderately convex on disk, dorsal pores adjoining stria 3, at about a fifth and just behind a half respectively. Microsculpture of the elytra formed by extremely fine, barely visible, transverse lines ($\times 75$); on the prothorax very wide meshes are just visible; on the head the meshes are isodiametric but very faint.

The species is a very variable one both in form and colour. The proportions of the prothorax and elytra given above are those of the type.

Length, 4–5 mm.

Distribution. PUNJAB: Simla Hills, Kotgarh (*M. Cameron*). UNITED PROVINCES: Dehra Dun, Anarwala, Happy Valley, and Nagal; Chakrata division, Konain, 8000 feet (*S. N. Chatterjee*), Bodiyar (*C. F. C. Beeson*), Korawa Khud (*M. Cameron*), Sijla Gad, Kanasar, and Khedar Khud (*S. N. Chatterjee*); Mussooree, Dhobi Ghat and Ringal Gad (*M. Cameron*); Siwalik Hills, Mohan Rau (*M. Cameron*); Kumaon, West Almora, and Naini-Tal (*H. G. Champion*); Tehri State (*M. Bose*). BENGAL: Darjeeling (*J. Harmand*); Gopaldhara (*H. Stevens*); Kurseong. SIKKIM: Rangli (*R. W. G. Hingston*).
Type in Mr. René Oberthür's collection.

279 a. *Trechus indicus* var. *championi*, Jeann.

Trechus championi Jeannel, Ann. Mag. Nat. Hist. (9) v, 1920, p. 109; id., Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 416 and 420, f. 12; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 20.

Trechus indicus subsp. *championi* Jeannel, Mon. (ii) pp. 157 and 158, ff. 528–532.

Black and more evidently iridescent. There appears to be nothing but the colour to distinguish the variety from the type-form, and both occur from end to end of the Himalayas.

Distribution. KASHMIR: Zolab Valley, Afan (*C. F. C. Beeson*); Baltal and Sonemarg (*G. Babault*). PUNJAB: Simla Hills, Kotgarh (*S. N. Chatterjee*) and Gahan (*M. Cameron*); Murree Hills, Camp Thobba (*H. Roberts*); Dharm-sala and Mandi, Jhatingri (*H. G. Champion*); Spiti, Pulga, and Lahul, Cimur (*G. Babault*). UNITED PROVINCES: Kumaon, West and Central Almora, Upper Gumti Valley, Sunderdhunga

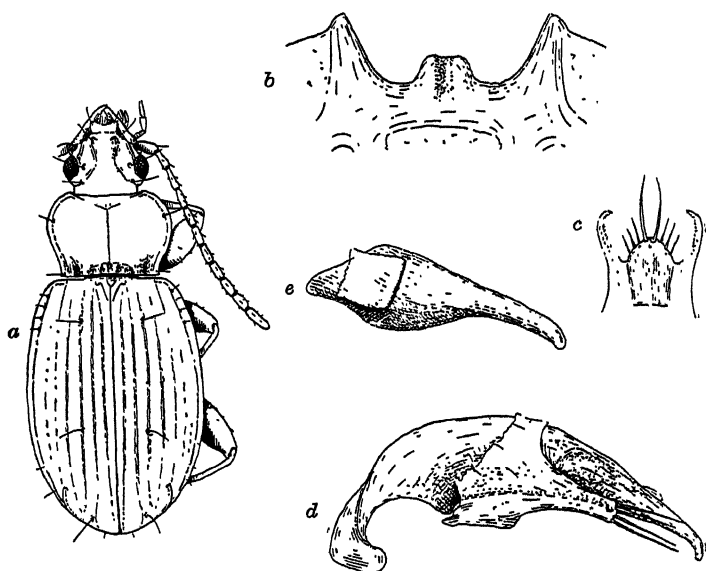


Fig. 9.—(a) *Trechus indicus* var. *championi* Jeannel; (b) mentum; (c) underside of ligula; (d) and (e) ædeagus.

Valley, and Swal River basin (all *H. G. Champion*); Chakrata, Deoban, 9000 feet, and Jaunsar (*H. G. Champion*); Naini-Tal and Ranikhet (*H. G. Champion*). BENGAL: Darjeeling (*H. Stevens*); Gopaldhara (*H. Stevens*).

Type in the British Museum.

279 b. *Trechus indicus* var. *macroderus*, Jeann. [Plate I, fig. 8.]

Trechus indicus subsp. *macroderus* Jeannel, Ann. Mag. Nat. Hist. (10) i, 1928, p. 290; id., Mon. (iii) p. 790.

Colour dark red, shiny; palpi, antennæ, and legs ferruginous.

Head like that of *indicus*, the eyes rather more prominent and shorter, about three times as long as genæ, which are convex and continue the outline of the eye; antennæ shorter and thicker, not extending far beyond the base of the elytra.

Prothorax large, about a third wider than head and as much wider than long, base truncate, hardly wider than apex, sides rounded in front, not sinuate behind, marginal channel very narrow, hind angles obtuse; median line fairly deep, basal sulcus deep, the foveæ shallower than in *indicus*. *Elytra* convex, two-fifths wider than prothorax, a third longer than wide; striae 1 to 3 moderately deep and indistinctly crenulate, 4 very slight, the rest obsolete, first dorsal pore not more than a fifth from base. Traces only of microsculpture present.

Dr. Jeannel calls this a brachypterous race of *indicus*, but it differs in so many characters from the type-form and from var. *championi* that it may yet prove to be a distinct species. At present it is known only by a unique ♀ specimen.

Length, 4 mm.

Distribution. KASHMIR: Kishtwar.

Type in the British Museum. A single ♀ example.

280. *Trechus macrops*, Jeann.

Trechus macrops Jeannel, Mon. (ii) pp. 157 and 160, ff. 533-536; id., Ann. Mag. Nat. Hist. (10) i, 1928, p. 289.

"Winged. Near *T. indicus*, but larger and wider, the eyes larger and more prominent, the prothorax shorter and

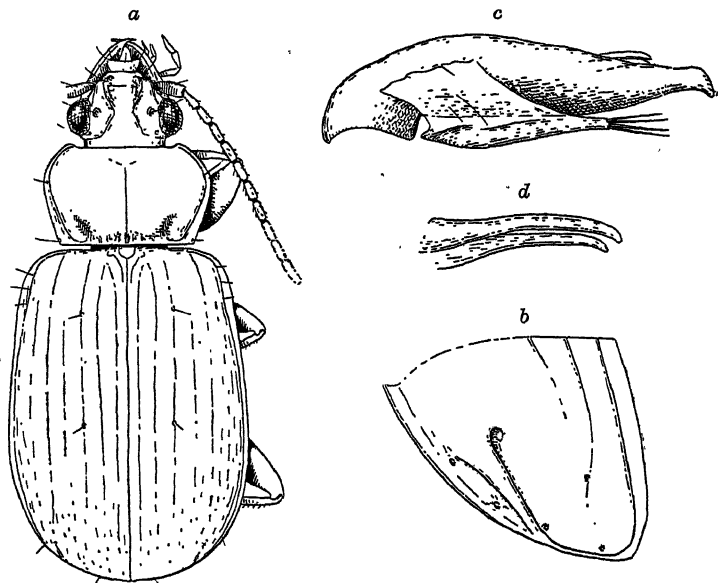


Fig. 10.—(a) *Trechus macrops* Jeannel; (b) apex of left elytron; (c) and (d) aedeagus.

more transverse, its base much wider than apex, the sides more rounded, arcuate up to the hind angles, not sinuate behind. Elytra large and long, the striation finer than in *T. indicus*, the outer striæ more effaced."

The type-specimen, labelled "Yunnan," was unique when the species was first described, but Dr. Jeannel has since seen a second example, taken by Mr. Babault "in Kashmir at Sonemarg in the mountains to the east of Lake Wular." He is now of opinion that the type was incorrectly labelled and that the species is an Indian one.

The illustration (fig. 10, p. 67) shows the ♂ genitalia, which may be compared with those shown under *T. indicus*. I have not seen the type, but Dr. Jeannel kindly sent me the Sonemarg specimen for examination. I was unable to discover any appreciable external differences between it and examples of *T. indicus*.

Length, 5.2 mm.

Distribution. KASHMIR: Sonemarg (*G. Babault*). YUNNAN(?).

Type in Dr. R. Jeannel's collection.

281. *Trechus imaicus*, Jeann.

Trechus imaicus Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 416 and 421, f. 13; id., Mon. (ii) pp. 157 and 161, ff. 537-539; id., Ann. Mag. Nat. Hist. (10) i, 1928, p. 284; Andrewes, Trans. Ent. Soc. Lond. 1930, p. 3.

Colour piceous; buccal organs flavous, joints 1 and 2 of antennæ (rest fuscous), epipleura, margins, apex, and suture of elytra, and legs more or less ferruginous.

Apterous. *Head* small; frontal furrows deep, smooth, and regularly curved; eyes rather flat; genæ short but evident; antennæ rather stout, reaching basal fourth of elytra, joint 2 a little shorter than 3. *Prothorax* convex, subcordate, a half wider than head, a third wider than long, widest at apical third, base slightly wider than apex, its sides a little oblique close to the angles, sides reflexed, regularly rounded from apex to base, the hind angles formed on each side by a small, obtuse, but fairly sharp tooth; median line and basal sulcus both moderately deep, the latter with one or two ill-defined pores, basal foveæ small but deep, separated from the angles on each side by a slight raised area. *Elytra* convex, oval, quite a half wider than prothorax, not quite a third longer than wide, shoulders much rounded but visible; striæ all visible and vaguely crenulate, 1 to 3 fairly deep and entire, the others slight, irregular behind, recurrent striae fairly deep and somewhat curved; inner intervals a little convex, 2 widening before apex, dorsal pores at a fourth and a half

respectively. Microsculpture of the elytra barely visible, though vague transverse lines are visible here and there; on the prothorax the transverse lines are more visible; on the head there are distinct meshes, a little wider than long.

Length, 4 mm.

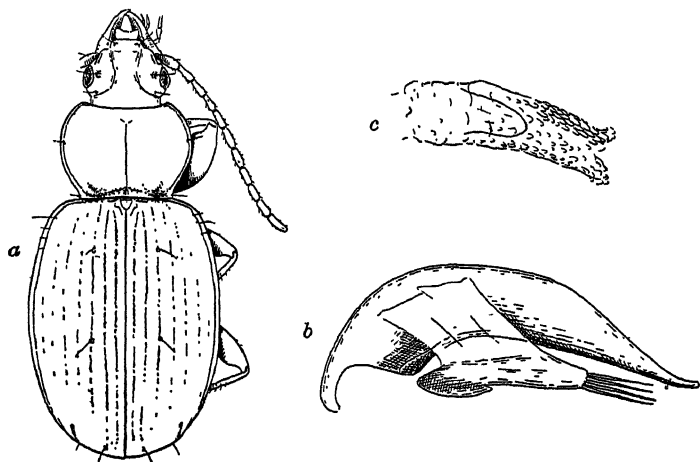


Fig. 11.—(a) *Trechus imaicus* Jeannel; (b) aedeagus; (c) inner sac.

Distribution. SIKKIM : Tonglu, 10,000 feet, on the Nepalese frontier (*H. Stevens*); Karponang (*R. W. G. Hingston*). BENGAL : Ghum district (*M. Cameron*).

Type in my collection.

282. *Trechus hingstoni*, Jeann.

Trechus hingstoni Jeannel, Ann. Mag. Nat. Hist. (10) i, 1928, p. 288, f. 2; id., Mon. (iii) p. 790; Andrewes, Trans. Ent. Soc. Lond. 1930, p. 4.

Colour piceous, shiny; basal joints of the antennæ (rest fuscous), palpi, base of the prothorax, base, apex, and suture of the elytra, sterna, and legs more or less ferruginous.

Apterous. *Head* rather small, with deep, smooth, regularly curved, frontal furrows; eyes rather flat, longer than the genæ, which are quite evident and curve round fairly sharply to the neck; antennæ rather short but stout, hardly reaching basal fifth of the elytra, joints 1 and 2 equal. *Prothorax* convex, subquadrate, rather more than a third wider than head and in the same proportion wider than long, widest a little before middle, base truncate, as wide as apex, sides reflexed, well rounded in front, sinuate close to base, hind

angles right and sharp; median line fairly deep, basal sulcus lightly impressed, basal foveæ large and deep, almost adjoining the angles. *Elytra* convex, oval, rather more than a half wider than prothorax, a fourth longer than wide, shoulders visible though rounded, sides strongly rounded; striæ very vaguely crenulate, 1 to 3 deep and entire, 4 and 5 traceable, 6 and 7 wanting, recurrent striae deep and wide, ending opposite stria 5; inner intervals moderately convex, 2 very wide near apex, front dorsal pore at a third or a fourth from base, hind one just behind middle. Microsculpture very slight, but isodiametric meshes are visible on the head and some vague transverse lines on the elytra.

Length, 3.5–4 mm.

Distribution. SIKKIM: Gnatong (R. W. G. Hingston).

Type in the British Museum.

283. *Trechus beelsoni*, Jeann. [Plate I, fig. 7.]

Trechus beelsoni Jeannel, Mon. (iv) p. 83.

Colour ferruginous, shiny; apical joints of antennæ fuscous, apical half to two-thirds of elytra black.

Apterous. *Head* small; frontal furrows deep, angulate at middle, diverging in front and behind; eyes flat, longer than genæ; antennæ submoniliform, reaching basal third of elytra, joints 2 and 3 equal. *Prothorax* subquadrate, convex, two-fifths wider than head and as much wider than long, widest at apical third, base produced at middle, wider than apex, sides narrowly reflexed, rounded from apex to base, the hind angles formed on each side by a slight obtuse tooth; median line and basal sulcus both moderately impressed, basal foveæ small and rounded, separated on each side from the margin by a slight raised area. *Elytra* moderately convex, subovate, not quite a half wider than prothorax, two-fifths longer than wide, shoulders quite apparent though rounded; striæ vaguely crenulate, the three inner ones fairly deep, 4 shallower, the rest slight but visible, recurrent striae moderately deep, curving slightly inwards at extremity; inner intervals moderately convex, dorsal pores at a fifth and just behind a half respectively. Microsculpture of the elytra formed by very fine transverse lines, traces only on the head and prothorax.

Length, 4 mm.

Distribution. KASHMIR: Gulmarg, 8500 feet (C. F. C. Beeson and M. Cameron).

Type in the British Museum.

284. *Trechus cameroni*, Jeann.

Trechus cameroni Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 416 and 422, f. 14; id., Mon. (ii) pp. 157 and 162, ff. 540-543; id., Ann. Mag. Nat. Hist. (10) i, 1928, p. 291.

Colour black or piceous; palpi, antennæ, lateral margins of prothorax, epipleura, margins, and suture of elytra, and legs more or less dark ferruginous.

Apterous. Head with deep curved furrows, diverging in front and behind and hardly angulate at middle; eyes small, not prominent; genæ inconspicuous; antennæ submoniliform, barely reaching basal fourth of elytra, joints 2 and 3 equal. Prothorax subquadrate, a little more than a third wider than

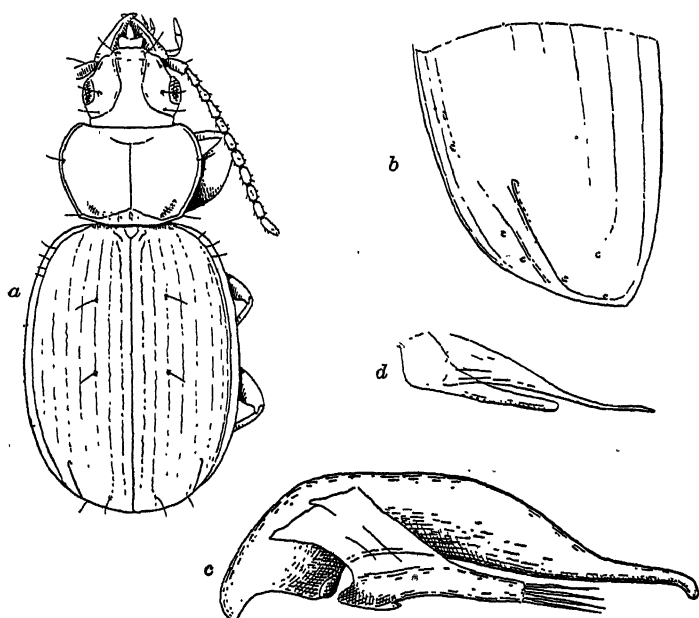


Fig. 12.—(a) *Trechus cameroni* Jeannel; (b) apex of left elytron; (c) and (d) aedeagus.

head and in the same proportion wider than long, widest at apical third, base slightly wider than apex, a little produced at middle, its sides rather oblique, sides rounded and reflexed, hind angles obtuse and reflexed, but not usually much rounded; median line moderately deep, basal sulcus deep, basal foveæ small but deep. Elytra convex, oval, a half wider than prothorax, a third longer than wide, shoulders apparent though rounded, sides strongly rounded; striae

very vaguely crenulate, 1 and 2 fairly deep on disk, 2 very faint near apex, the other striæ very lightly impressed, the outer ones barely visible, recurrent striae straight and fairly deep, curving slightly inwards in front; inner intervals slightly convex, dorsal pores at a fourth and just behind a half respectively. Microsculpture of the elytra formed by very wide meshes, hardly any visible on the head and prothorax.

Length, 3.3–3.6 mm.

Distribution. PUNJAB: Simla Hills, Kotgarh, 7000 feet (*S. N. Chatterjee*), Narkanda, 9200 feet (*M. Cameron*), Tharoch, Talratach, 10,000 feet (*C. F. C. Beeson*); Jalori Pass, Seraj, 10,800 feet (*H. G. Champion*); Lahul, Rotang Pass, 12,000 feet (*C. Rost*).

Type in the British Museum.

284 *α*. ***Trechus cameroni* var. *bistriatus***, *Jeann.*

Trechus cameroni Jeannel, subsp. *bistriatus* Jeannel, Ann. Mag. Nat. Hist. (10) i, 1928, p. 291; id., Mon. (iii) p. 791.

Coloured as in the type-form, the head and prothorax similar. The elytra are a little longer, but the chief difference is in their striation; striæ 1 and 2 are very lightly impressed, 3 and 4 are just visible under a high magnification, the other striæ wanting.

Distribution. PUNJAB: Kangra, Lake Kareri (*S. L. Hora*).

Type in Dr. Jeannel's collection.

285. ***Trechus thibetanus***, *Jeann.*

Trechus thibetanus Jeannel, Ann. Mag. Nat. Hist. (10) i, 1928, p. 284, f. 1; id., Mon. (iii) p. 791; Andrewes, Trans. Ent. Soc. Lond. 1930, p. 4.

Colour black or piceous; antennæ at base (sometimes altogether), prothorax (sometimes margins only), base, apical border, and suture of elytra, sterna, base of venter, and legs more or less dark ferruginous.

Apterous. *Head* similar to that of *cameroni*, but the frontal furrows are much shallower and subangulate at middle; the eyes flat; the antennæ a little longer and not at all moniliform. *Prothorax* also similar, but the base is of the same width as the apex, the sides are less rounded, and, although the basal sulcus is equally deep, the foveæ are obsolete. *Elytra* very similar to those of *cameroni*, but relatively rather longer and less convex; the striæ are variable, sometimes the inner ones are lightly impressed and the outer ones obsolete, sometimes the four inner striæ are moderately impressed and all the striæ are visible, recurrent striae fairly deep, curving slightly inwards and ending opposite stria 5. The meshes

of the microsculpture are much less wide, on average only two to three times wider than long. The outer sulcus on the protibiæ is obsolete.

The species is extremely variable both in colour and form, but the characters given above appear to distinguish it sufficiently from *cameroni*.

Length, 2.8–4 mm.

Distribution. SIKKIM: Tangu. TIBET: Chumbi Valley, Gautsa, Tuna, Pangle, Pang La, Tashidzom, Lamna La, Phuse La, and Tasam (all *R. W. G. Hingston*).

Type in the British Museum.

A species of high altitudes, examples having been found by the Third Mount Everest Expedition up to a height of 17,000 feet, probably the highest point at which coleoptera have ever been met with.

286. *Trechus pumilio*, Jeann.

Trechus pumilio Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, pp. 416 and 424, f. 15; id., Mon. (ii) pp. 157 and 163, f. 544.

Colour piceous, margin of the elytra reddish, palpi, antennæ, and legs ferruginous.

Apterous. *Head* small, frontal furrows deep, not angulate on the vertex, a rounded impression on each side on their

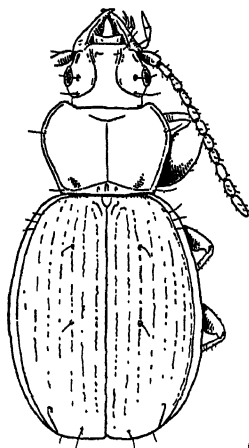


Fig. 13.—*Trechus pumilio* Jeannel.

outer margin and just behind the clypeal suture; eyes flat, rather longer than genæ; antennæ short, moniliform, joint 2 slightly shorter than 3. *Prothorax* subquadrate, about a third

wider than head, a little more than a third wider than long, widest at a third from apex, base as wide as apex, sides strongly rounded and sinuate before base, the marginal channel wide, especially behind, the hind angles obtuse but moderately sharp; median line fairly deep, transverse sulcus short, with a few vague pores, the foveæ small, smooth, and shallow. *Elytra* oval, moderately convex, a half wider than prothorax, a third longer than wide, the sides well rounded, the shoulders effaced; all the striæ visible and vaguely crenulate, the three inner ones lightly impressed, the rest faint, recurrent striae faint, terminating before quite reaching stria 5, dorsal pores at a fifth and just behind middle respectively. Microsculpture of the head formed by isodiametric meshes; on the prothorax the meshes are vague and transverse, on the elytra even vaguer and irregular. Protibiæ with only a slight external sulcus.

Length, 2.8 mm.

Distribution. UNITED PROVINCES: Kumaon, Pindar Valley, 8000–11,000 feet (*H. G. Champion*).

Type in the British Museum.

Only a solitary ♀ specimen is at present known.

Genus AGONOTRECHUS.

Agonotrechus Jeannel, *Ann. Mag. Nat. Hist.* (9) xii, 1923, p. 428
id., *Mon. des Trechinae* (iii), Abeille, xxxv, 1928, p. 85.

TYPE, *Trechus birmanicus* Bates. (Burma.)

Form oval and convex, surface glabrous, shiny, and somewhat iridescent; colour black, piceous, or brown.

Head with large and generally rather flat eyes, narrowly separated from the buccal fissure, genæ inconspicuous; clypeus quadrisetose, labrum sexsetose, generally bisinuate, sometimes emarginate; mandibles stout, bidentate; ligula 8-setose, free at apex, paraglossæ fairly wide, extending beyond the ligula; mentum completely fused with the submentum, the former with a short simple tooth and a pair of setæ, one on each side of its base, submentum quadrisetose; maxillæ with the outer lobe two-jointed, the inner one with comparatively few bristles; palpi slender, the apical slightly longer than the penultimate in the maxillaries, the penultimate longer than the apical joint in the labials, inwardly bisetose; antennæ slender, reaching basal third of elytra, joint 2 shorter than the other joints.

Prothorax subcordate or quadrate, sides reflexed, with two setæ, placed at about basal third and in front of the hind angle.

Elytra wide, oval, convex, the border rounding the shoulder and reaching stria 5; striæ moderately deep, punctate, entire, the recurrent apical striole joining 5; intervals moderately convex, 3 with a single dorsal pore near base, adjoining stria 3, apical pore at the point where striæ 2, 3, and 4 meet or nearly meet. Microsculpture formed by vague, barely visible transverse lines ($\times 75$).

Legs fairly stout, the protibiæ externally grooved and slightly pubescent at apex; protarsi with two dilated joints in the ♂.

Range. India and Burma.

Key to the Species.

- 1 (4) Prothorax with its sides rather widely reflexed, slightly sinuate before the hind angles, which are sharp though a little obtuse.
- 2 (3) Eyes rather flat, labrum bisinuate in front. Length 5-5.5 mm. [p. 75.
birmanicus, Bates,
- 3 (2) Eyes moderately prominent, labrum emarginate in front. Length 5.8 mm. *iris*, sp. nov., p. 76.
- 4 (1) Prothorax with its sides narrowly reflexed, evenly rounded, without sinuation before the hind angles, which are obtuse and somewhat rounded, labrum bisinuate in front. Length 4.8 mm. ... p. 77.
andrewesi, Jeann.,

287. *Agonotrechus birmanicus*, Bates.

Trechus birmanicus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 297.

Agonotrechus birmanicus Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 429; id., Mon. (iii) p. 87, ff. 1319-23.

Colour piceous or brown, the upper surface slightly iridescent, sides of the prothorax and elytra reddish brown, antennæ ferruginous, legs and palpi flavous.

Head with deep sulci, terminating on each side behind in an oblique shallow line which does not extend far behind the eyes; front margin of labrum slightly bisinuate; eyes large and rather flat; genæ small and inconspicuous. *Prothorax* subcordate, moderately convex, a third wider than head, a fourth wider than long, base truncate, a third wider than apex, sides gently rounded, strongly and widely reflexed, barely sinuate before base, hind angles strongly reflexed, moderately sharp but a little obtuse; median line moderately deep, entire, transverse impressions slight, basal foveæ wide and deep, surface impunctate. *Elytra* convex, oval, two-thirds wider than prothorax, a little less than a half longer than wide, shoulders rounded but evident; striæ moderately deep, fine, and rather inconspicuously punctate, the outer ones

shallower behind, 1 joining 2 and 3 joining 4 at base, 2 to 4 meeting behind at the apical pore, intervals moderately convex.

Length, 5-5.5 mm.

Distribution. BURMA : Karen Mountains (*L. Fea*).

Type in the Genoa Civic Museum.

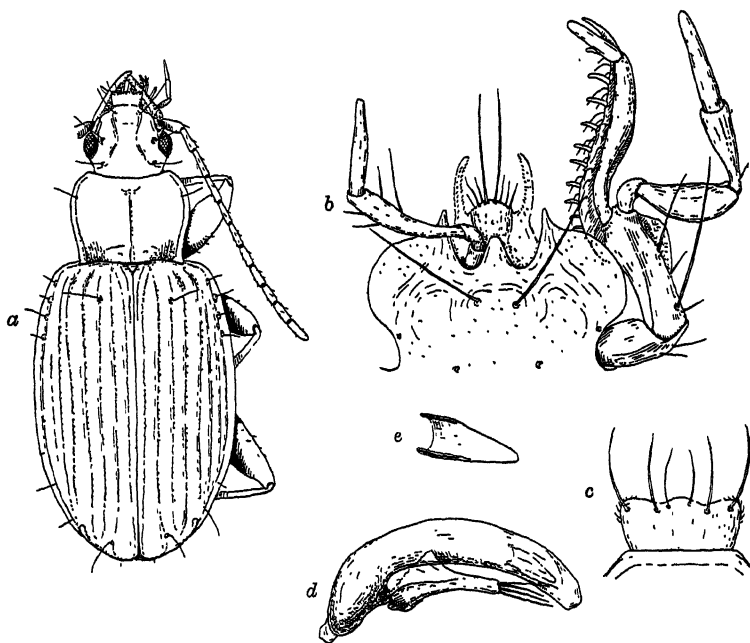


Fig. 14.—(a) *Agonotrechus birmanicus* Bates; (b) labium; (c) labrum; (d) and (e) aedeagus.

I have seen the type and a co-type, both in the Genoa Museum, and I have a co-type in my own collection. The measurements given above are those of the type; in my example all the parts of the insect are wider, so that the proportions are a little different.

288. *Agonotrechus iris*, sp. nov. [Plate I, fig. 5.]

Colour of the underside brown, the upper surface piceous black and a little more iridescent than in *birmanicus*; palpi and joints 1 to 3 of the antennæ ferruginous; lateral margins of the prothorax (vaguely), lateral margins and suture of the elytra, rest of antennæ, and legs dark ferruginous.

Head differing from *birmanicus* in the sulci, which are

similar in front but form a shallow groove instead of a fine line where they curve round on each side behind; the front of the labrum is emarginate instead of bisinuate; the eyes are moderately prominent; joint 3 of the antennæ, which in *birmanicus* is about a third longer than 2, is here quite a half longer. *Prothorax* nearly similar in form, but two-fifths wider than head and a third wider than long, base about a third wider than apex; the impressions are all a little deeper but of the same form. *Elytra* a little wider, three-fifths wider than prothorax, but a little less than a half longer than wide, the striae hardly differing in depth but a little more conspicuously punctate.

Length, 5.8 mm.

Distribution. UNITED PROVINCES : Dehra Dun, Dobhalwala.

Type in my collection.

289. *Agonotrechus andrewesi*, Jeann.

Trechus indicus (?) Andrewes (not Putzeys), Trans. Ent. Soc. Lond. 1922, p. 247; Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 417.

Agonotrechus andrewesi Jeannel*, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 430, f. 17; id., Mon. (iii) p. 89, ff. 1324-7.

Colour beneath piceous, upper surface black, shiny,

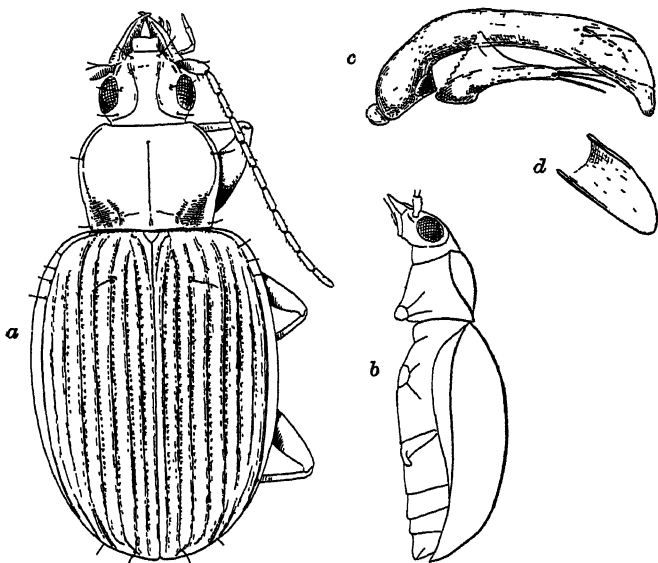


Fig. 15.—(a) *Agonotrechus andrewesi* Jeannel; (b) lateral aspect; (c) and (d) aedeagus.

slightly iridescent; elytral margins (rather faintly), palpi, antennæ, and legs ferruginous.

Head smaller than in *birmanicus*; the continuation of the sulci on each side behind the eyes slightly deeper; the eyes almost as flat, the surface adjoining them with some vague oblique striation; the antennæ with more slender joints, 1 hardly longer than 2. *Prothorax* quadrate, a little more than two-fifths wider than head, a third wider than long, base much wider than apex, sides less widely reflexed than in *birmanicus*, gently and evenly rounded, without sinuation before base, hind angles obtuse and a little rounded; the impressions on the surface are all very similar, but the basal foveæ are somewhat deeper. *Elytra* relatively shorter and wider than in *birmanicus*, quite two-thirds wider than prothorax, about two-fifths longer than wide, the striæ a little deeper and the intervals more convex.

Length, 4.8 mm.

Distribution. BENGAL: Kurseong and Darjeeling.

Type in my collection.

Genus STEVENSIUS.

Stevensius Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 432; id., Mon. des Trechiniæ (iii), Abeille, xxxv, 1928, p. 90.

TYPE, *Stevensius lampros* Jeannel. (Sikkim.)

Apterous. Form wide, head very large, genæ much developed, prothorax strongly contracted behind, surface smooth and shiny.

Head large, with small rather flat eyes, widely separated from the buccal fissure; genæ strongly dilated, much longer than eyes, and extending as far laterally; clypeus quadrisetose, emarginate in front, the central part continuing the convexity of the front, the margins flat, labrum sexsetose, emarginate; mandibles stout, long, bidentate, slightly hooked; mentum fused with the submentum, the former with a short bifid tooth and a seta on each side distant from the tooth, the latter with a pore on each side behind the buccal fissure; ligula small, porrect, sexsetose; palpi short, slight, pointed at apex, penultimate joint slender at base, dilated at apex, equal to the apical joint in the maxillaries, longer in the labials, with its inner margin bisetose; antennæ submoniliform.

Prothorax cordate, convex, sides narrowly reflexed in front, more widely behind, lateral setæ at apical third and on the hind angle.

Elytra wide, subovate, convex, basal border rather long, oblique, reaching a point approximately opposite the site of stria 3; striæ vestigial, scutellary stria short but distinct,

originating on each side in an umbilicate pore, surface smooth and shiny.

Legs short, the protibiæ externally grooved and slightly pubescent at apex; protarsi with two dilated joints in the ♂.

Range. Sikkim.

290. *Stevensius lampros*, Jeann.

Stevensius lampros Jeannel *, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 433, f. 18; id., Mon. (iii), p. 92, ff. 1328-31.

Colour black, shiny, head and prothorax sometimes reddish; palpi, antennæ, legs, and margins of the elytra dull red.

Form rather ant-like, the base of both prothorax and elytra strongly contracted to the peduncle, so that the insect appears constricted at middle.

Head large, the neck very thick, the sulci deep, nearly parallel in front and continuing on each side in a regular and fairly

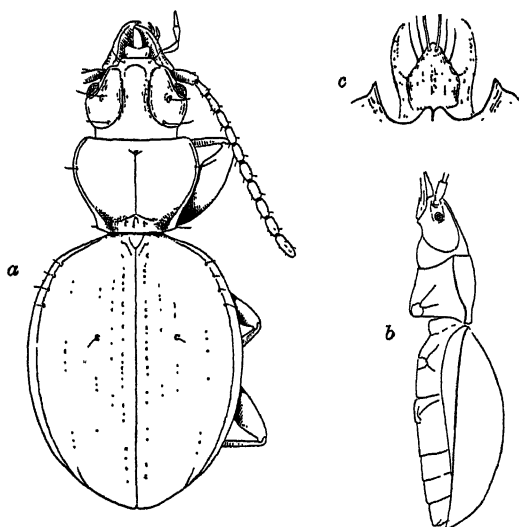


Fig. 16.—(a) *Stevensius lampros* Jeannel; (b) lateral aspect; (c) labium.

deep groove behind the genæ; eyes small and flat, placed very near the insertion of the antennæ, which are stout but only reach the basal fifth of the elytra, joints 1, 3, and 11 a little longer than the rest, joints 7 to 11 oval, about a half longer than wide. *Prothorax* not quite a third wider than head, about two-thirds wider than long, base truncate, evidently narrower than apex, front angles rounded, declivous, adjoining neck, hind angles reflexed, and forming on each side, without

projecting laterally, a sharp rectangular tooth; median line fairly deep behind, base depressed, basal foveæ fairly large and deep, diverging strongly in front. *Elytra* a half wider than prothorax, a third longer than wide, the humeral angles just indicated; traces of the inner striæ, though vague, are quite appreciable, surface smooth and polished, with a single large dorsal pore on stria 3 at two-fifths from base, recurrent striole short, curved, and very distinct, widening out in front and ending on the middle of the elytron,

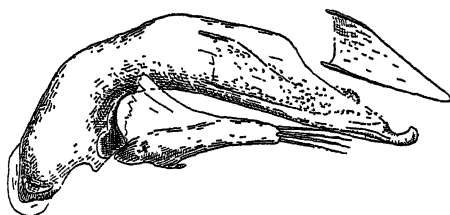


Fig. 17.—*Stevensius lampros* Jeannel (aedeagus).

a pore just within it close to apex. Microsculpture of the prothorax and elytra formed by transverse lines, which are only just visible; on the head the meshes are isodiametric but distinct only on the neck.

Length, 4.75 mm.

Distribution. SIKKIM: Tonglu, on the Nepal frontier, at 10,000 feet (*H. Stevens*).

Type in my collection.

Group XVII. BEMBIDIINI.

Though the genera are few the species are very numerous, so that this is one of the largest groups of the HARPALINÆ; the distribution is world-wide, and five of the genera are found in the Indian region. The head has two supraorbital setæ on each side, the frontal furrows are sometimes moderately but never very deep, and they do not curve round behind the eyes as in the TRECHINI; the mandibles have a seta in the scrobe, the ligula has two setæ at apex, placed close together, the paraglossæ hardly extend beyond the ligula, the apical joint of the palpi is exceedingly small and subulate, the penultimate joint dilated and pubescent, the antennæ with the first two joints glabrous; the sides of the prothorax are nearly always bisetose and the elytra are with or without a recurrent striole. The form of the apical joint of the palpi is not unlike that of *Perileptus* (TRECHINI), but it is smaller, shorter, and generally more definitely subulate.

Key to the Genera.

- 1 (6) Outer margin of the protibiae straight from base to apex.
- 2 (3) Elytra covered with short dense pubescence, often forming a pattern, the puncturation quite irregular; traces only of striation present ASAPHIDION, p. 81.
- 3 (2) Elytra glabrous, striate, or at least with stria 2 nearly always present, a short scutellary striole present.
- 4 (5) Mandibles short and fairly stout, maxillæ normal and not longer than the mandibles; antepenultimate joint of the maxillary palpi not unusually developed BEMBIDION, p. 92.
- 5 (4) Mandibles and maxillæ both very long and slender, the maxillæ longer than the mandibles; antepenultimate joint of the maxillary palpi very long and slender, a third longer than joint 1 of the antennæ [p. 204.]
TIRUKA, gen. nov.,
- 6 (1) Outer margin of the protibiae obliquely truncate and sometimes slightly emarginate at apex, no scutellary striole.
- 7 (8) Upper surface glabrous, a recurved striole nearly always present on each side at the apex of the elytra TACHYS, p. 206.
- 8 (7) Upper surface shortly pubescent, with at most a rudimentary recurved striole at the apex of the elytra LYMNASTIS, p. 302.

Genus ASAPHIDION.

Asaphidion Des Gozis, Recherche de l'espèce typique de quelques anciens genres, rectifications synonymiques, et notes diverses, 1886, p. 6; Bedel, Catalogue raisonné des Coléoptères du Nord de l'Afrique, 1896, p. 55; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 18; id., Ent. Month. Mag. 1925, p. 49; id., Ent. Month. Mag. 1935, p. 200.

Tachypus Dejean (not Weber), Spec. Gen. v, 1831, p. 35; Castelnau, Hist. Nat. Col. i, 1840, p. 152.

TYPE, *Cicindela flavipes* L. (Palæarctic region.)

Colour mainly æneous. Body convex, punctulate, and with a short recumbent pubescence, often mottled on the elytra, and sometimes concealing the sculpture.

Head wide, often wider than prothorax, flat or depressed between the eyes, which are very large and prominent, a little removed from buccal fissure, with two supraorbital setæ; surface rugose-punctate, sometimes striate, frontal furrows obsolete; labrum truncate or arcuate, sexsetose, dypeus transverse, bisetose; mandibles short and stout; mentum emarginate and with a rounded or subtruncate tooth in the emargination; ligula a little dilated at apex, where two setæ

are present, some accessory setæ being present on each side; paraglossæ narrow, membranous, free at apex, curving inwards in front, and extending a little beyond ligula; maxillæ as in *Bembidion*; palpi with the apical joint subulate and very small, penultimate joint dilated, setulose in the maxillaries, but with only a few setæ in the labials; antennæ fully pubescent from joint 5, but setæ are present on the basal joints and increase in number from the base onwards, joint 2 either equal to or shorter than 3.

Prothorax convex, cordate, strongly contracted behind, base produced backwards at middle, sides with a single seta at apical third, very rarely with a second seta on the hind angle, normal impressions very slight.

Elytra moderately convex, subovate, the surface generally uneven, but with only traces of striation, punctate, sometimes asperate, occasionally with one or two small smooth areas along sides, the pubescence varying in density but sometimes forming a pattern, border usually more or less sinuate on each side near apex, two generally deep and very conspicuous dorsal pores, a third smaller pore near apex.

Underside smooth, sterna sometimes punctate and slightly pubescent (*indicum*), metasternal process unbordered between the mesocoxæ but generally with a depression behind it, first ventral segment longitudinally striate along base, ♂ with one seta, ♀ with two setæ on each side of last ventral segment, protarsi ♂ with joint 1 strongly, joint 2 feebly dilated, 1 nearly as long as 2-4 taken together.

A microsculpture of the upper surface is always present, sometimes rough, but often clearly reticulate, not infrequently masked by the close puncturation.

Range. Palearctic region, including the Himalayas and Yunnan, a single species being found in Alaska.

The species are not numerous and frequent the banks of streams and lakes, being met with sometimes at elevations of 8000 or 9000 feet; a specimen of *indicum* was taken in "tree-moss." Of the life-history nothing seems to be known.

Key to the Species.

- 1 (20) Prothorax without any seta on the hind angles.
- 2 (5) Prothorax wider than head; colour dark bronze with traces of blue. Large species of over 5 mm. in length.
- 3 (4) Femora mainly dark, reddish at base..
- 4 (3) Femora mainly pale ferruginous.....
- 5 (2) Prothorax narrower than head. Small species of at most and usually under 5 mm. in length.

[p. 84.
championi, Andr.,
championi var. *luteipes*,
 [var. nov., p. 85.]

- 6 (15) Elytra very finely punctate, covered by a close grey pubescence, forming a pattern and largely concealing the puncturation over the whole surface.
- 7 (12) Prothorax rounded at sides; joints 1 to 4 of antennæ (mainly) and femora dark.
- 8 (11) Apical pore on the elytra small and inconspicuous.
- 9 (10) Colour æneous, the grey pubescence on the elytra forming vague rounded patches *obscurum*, Andr., p. 85.
- 10 (9) Colour bronze, the grey pubescence on the elytra arranged more or less in three transverse bands..... [p. 85.
cuprascens, Andr.,
- 11 (8) Apical pore on the elytra large and conspicuous, the pubescence forming a highly variegated pattern *griseum*, Andr., p. 86.
- 12 (7) Prothorax angulate or subangulate at sides; joints 1 to 4 of antennæ and femora pale.
- 13 (14) Elytra dark grass-green, covered by a pale grey pubescence, with small dark patches here and there; apical pore distinct. Length 4.5 mm. *viride*, Andr., p. 87.
- 14 (13) Elytra mainly black, mottled with yellowish green along suture and on apical half, the grey pubescence forming only vague patches; apical pore indistinct. Length 5 mm. [p. 88.
formosum, sp. nov.,
- 15 (6) Elytra moderately punctate, the puncturation visible over a large part of the surface, or, if more finely punctate, then visible at least at sides.
- 16 (19) Antennæ short, hardly dilated at apex; elytra nearly uniform in colour, the puncturation visible over a large part of the surface.
- 17 (18) Head not longitudinally striate; elytra three-fourths longer than wide, the surface nearly even, colour æneous. Length 4 mm. *indicum*, Chaud., p. 88.
- 18 (17) Head longitudinally striate; elytra a half longer than wide, surface somewhat uneven, æneous, the head and prothorax dark green. Length 4.4 mm. [p. 89.
substriatum, Andr.,
- 19 (16) Antennæ long, dilated at apex; elytra each with a broad purple stripe down the middle, the fine puncturation clearly visible at sides *ornatum*, Andr., p. 90.
- 20 (1) Prothorax with a seta on the hind angles, subangulate at sides, as wide as head; elytra vaguely striate; colour mainly æneous *triste*, sp. nov., p. 91.

291. *Asaphidion championi*, Andr. [Plate IV, fig. 8.]

Asaphidion championi Andrewes, in Mission dans les Provinces Centrales et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 84, t. 2, f. 2; id., Ent. Month. Mag. 1925, p. 52, t. 1, f. 4; Netolitzky, Ark. Zool. 27 A, 18, Col. 4, Carab. 1934, p. 22.

Colour of the upper surface dark bronze, sometimes with traces of blue, covered with a short recumbent grey pubescence, mottled on the elytra; underside black, with green and blue reflections; joints 1 to 4 of antennæ at base, middle of tibiæ, and base of femora reddish, the legs (where dark) with metallic reflections, tibiæ and tarsi often blue.

Head finely strigose-punctate, the setiferous pores on each side of clypeus unusually large; antennæ rather long, filiform, joint 3 quite a third longer than 2. *Prothorax* convex, slightly though evidently wider than head, a sixth wider than long, base produced at middle and slightly emarginate on each side, rather narrower than apex, sides subangulate at two-fifths from apex, strongly contracted behind and sinuate near base, hind angles subtruncate, projecting a little laterally, without seta; transverse impressions fairly deep, median line fine but foveate where it meets the two impressions, a slight fovea on each side close to the angles, surface vaguely striate and finely punctate, coarsely across base. *Elytra* convex, ovate, though with well-marked shoulders, fully two-thirds wider than prothorax, a half longer than wide, border slightly sinuate on each side near apex; striation obsolete, but stria 1 is visible though only faintly impressed, suture raised, surface a little uneven, a vague semi-smooth area at middle of sides and a smaller vaguer one at three-fourths; dorsal pores conspicuous at about a fourth and two-thirds respectively; surface finely and densely punctate, the patches of grey pubescence rounded and rather faint. Microsculpture quite visible on the elytra, where the meshes are a little wider than long, isodiametric (where visible) on the prothorax and head, but very fine and indistinct on the latter.

Length, 5.4–6 mm.

Distribution. PUNJAB: Spiti, Manikarn (G. Babault); Simla Hills, Asni, 3600–4000 feet (B. N. Chopra). UNITED PROVINCES: Kumaon, West Almora (H. G. Champion); Haldwani division, Kaldbunga (H. G. Champion); Chakrata division, Binal Gad, 7000–8000 feet, Bodiyar, 8300 feet, Manjgaon, 6500 feet, Tadi Gad, 7000 feet (all S. N. Chatterjee). BENGAL: Kalimpong (F. H. Gravely). ASSAM: Darrang, Doiphang Valley (S. W. Kemp).

Type in the British Museum.

291 a. *Asaphidion championi* var. *luteipes*, var. nov.

In this variety the femora are mainly pale ferruginous, but otherwise it does not differ from the type-form.

Distribution. NORTH-WEST FRONTIER PROVINCE: Hazara, Upper Kagan Valley, Narang, 8000 feet (*H. G. Champion*).

Type in the British Museum.

292. *Asaphidion obscurum*, *Andr.* [Plate V, fig. 1.]

Asaphidion obscurum Andrewes, Ent. Month. Mag. 1925, p. 52, t. 1, f. 1.

Colour æneous, upper side dull, covered with short recumbent grey pubescence, mottled on the elytra, legs and antennæ with some metallic lustre, underside metallic and shiny; joints 1 to 4 of antennæ at base and tibiæ reddish.

Head a little wider than prothorax, the surface closely reticulate-punctate; antennæ short and compact, joint 2 a little shorter than 3. *Prothorax* convex, a fourth wider than long, both extremities produced at middle, base not emarginate at sides, rather narrower than apex, sides rounded, sharply contracted behind, the hind angles inconspicuous, slightly obtuse, without seta; median line fine, not reaching extremities, front transverse impression deep at middle, base depressed, with rather slight foveæ at sides, surface reticulate-punctate. *Elytra* elongate-ovate, with square shoulders, a little more than a half wider than prothorax, nearly two-thirds longer than wide, emarginate on each side near apex, the outer angle of the emargination conspicuously toothed; surface fairly even, without striation, covered with rather fine shallow punctures, not very closely placed, a slight uneven raised area just outside the hind dorsal pore, which is shallower and less conspicuous than the front one, no smooth areas along sides. Microsculpture isodiametric, though more or less concealed by the pubescence.

Length, 3.75–4.2 mm.

Distribution. UNITED PROVINCES: Garhwal, Dudhatoli, 8000–10,000 feet (*H. G. Champion*); Chakrata division, Bear Garden, 6000 feet, and Saharanpur division, Siwalik Hills (both *H. G. Champion*); Dehra Dun (*S. Bahadur*); Dehra Dun, River Song (*M. Cameron*).

Type in the British Museum.

293. *Asaphidion cuprascens*, *Andr.* [Plate V, fig. 2.]

Asaphidion cuprascens Andrewes, Ent. Month. Mag. 1925, p. 53, t. 1, f. 5.

Colour of the upper surface bronze, subsericeous, closely covered with a short recumbent grey pubescence, mottled

with brown on the elytra; underside, legs, and antennæ æneous; joints 1 to 3 of antennæ at base and middle of tibiæ reddish.

Head a little wider than prothorax, surface reticulate-punctate; eyes large but a little less prominent than in the other species; antennæ submoniliform, joint 3 hardly longer than 2. *Prothorax* convex, a little wider than long, both base and apex produced at middle, base with its sides oblique but not emarginate, a little narrower than apex, sides rounded and strongly contracted behind, hind angles somewhat obtuse and inconspicuous, without seta; median line fine, front transverse impression wide, base depressed, with only vague foveæ at sides, surface reticulate-punctate. *Elytra* ovate, with rather square shoulders, about three-fifths wider than prothorax, a half longer than wide, emarginate on each side near apex, the emargination obtusely angulate on the outer side; no regular striation, the surface a little uneven, with shallow inconspicuous puncturation, slightly raised in front of the hind dorsal pore, no smooth areas along sides; dorsal pores very distinct but only moderately impressed, at about a third and two-thirds. Microsculpture finely isodiametric where visible.

Length, 4.75 mm.

Distribution. UNITED PROVINCES: Haldwani division, Kaldunga (H. G. Champion).

Type in the British Museum.

294. *Asaphidion griseum*, Andr. [Plate V, fig. 3.]

Asaphidion griseum Andrewes, Ent. Month. Mag. 1925, p. 54, t. 1, f. 6.

Colour: upper surface æneous green, mottled with moderately long conspicuous recumbent grey or light brown pubescence; underside, penultimate joint of palpi, antennæ, femora, apex of tibiæ, and tarsi dark metallic green; joint 1 of antennæ with base of joints 2 and 3 and middle of tibiæ ferruginous.

Head evidently wider than prothorax, surface finely punctate-reticulate, some coarser puncturation in front, irregularly longitudinally striate between the eyes; antennæ submoniliform, joint 2 hardly shorter than 3. *Prothorax* convex, a little wider than long, extremities produced at middle, base narrower than apex, its sides slightly emarginate, sides rounded, sinuate a little before base, hind angles a little obtuse, inconspicuous, without seta; median line distinct, both base and apex transversely depressed, surface rather coarsely reticulate-punctate. *Elytra* ovate, a half wider than prothorax, two-thirds longer than wide, border very nearly reaching

hind angles of prothorax, emarginate on each side near apex, the emargination obtusely angulate on the outer side; no evident striation, but the surface is uneven, with vague impressions across base, along sides, and near the dorsal pores, which are placed at a third and three-fifths respectively, apical pore large and conspicuous, surface rather finely and not very closely punctate, without any smooth areas along sides. The microsculpture, where not concealed by the pubescence or masked by irregularities of surface, is quite clear and isodiametric.

Length, 4.8 mm.

Distribution. EASTERN DUARS (*H. Stevens*).

Type in my collection. This example is at present unique.

The species is more densely pubescent and more variegated in colour than any other known to me.

295. *Asaphidion viride*, *Andr.* [Plate V, fig. 4.]

Asaphidion viride Andrewes, Ent. Month. Mag. 1925, p. 54, t. 1, f. 7.

Colour of the upper surface dark grass-green, base of prothorax cupreous, with a rather conspicuous short recumbent light grey pubescence, mottled on the elytra; underside black; palpi, joints 1 to 4 of antennæ (rest fuscous), and legs ferruginous (tibiæ lighter, tarsi darker).

Head depressed between the eyes, evidently wider than prothorax; longitudinally striate on each side; surface reticulate-punctate; antennæ filiform, joint 2 shorter than 3. *Prothorax* convex, not quite a third wider than long, base produced at middle, slightly emarginate on each side, a little oblique close to the angles, narrower than apex, strongly contracted behind, sides obtusely angulate at a fourth from apex, sinuate close to base, the hind angles right, projecting a little laterally, without seta; median line fine, front transverse impression obsolete, base depressed, vaguely foveate at sides, surface reticulate-punctate. *Elytra* ovate, two-thirds wider than prothorax, not quite a half longer than wide, border slightly sinuate on each side near apex; no striation, surface a little uneven along the middle of each elytron, two small smooth areas along sides at about a half and two-thirds respectively; dorsal pores very distinct, at a fourth and two-thirds, an additional non-setiferous pore in front of the small apical one and rather further removed from suture, surface finely and not very closely punctate. Microsculpture isodiametric, though a good deal concealed by the pubescence.

Length, 4.5 mm.

Distribution. SIKKIM: Dikchu in the Tista Valley, 2000 feet (*H. Stevens*).

Type in my collection.

This and a second example, both ♂♂, were "taken at evening on wet sand under the shade of huge boulder at edge of river."

296. *Asaphidion formosum*, sp. nov. [Plate I, fig. 9.]

Colour black, head and prothorax vaguely yellowish green, elytra mottled more distinctly with the same colour on the apical half and also along the sutural area; palpi, joints 1 to 4 of antennæ, and legs ferruginous; surface with a short recumbent light grey pubescence, forming vague patches on the elytra, which become rather more distinct at sides and towards apex.

Head wider than prothorax; a slight carina on each side before the front supraorbital pore; surface finely vermiculate-punctate; antennæ stout, joint 2 shorter than 3. *Prothorax* convex, a third wider than long, base produced at middle, emarginate at sides, a fourth narrower than apex, sides subangulate at a third from apex, strongly contracted behind and sinuate a little before base, hind angles slightly acute and projecting a little laterally, without seta; median line very fine, basal sulcus and foveæ moderately deep, surface finely vermiculate-punctate. *Elytra* ovate, with rather square shoulders, two-thirds wider than prothorax, a half longer than wide, border slightly sinuate on each side behind; no striation, though there is a vague longitudinal impression on the middle of each elytron and two or three smaller but deeper ones along the margins, surface otherwise fairly even, finely and indistinctly punctate; dorsal pores large, deep, and shiny at bottom, at about a fourth and three-fifths respectively. Microsculpture of the elytra formed by minute meshes, almost asperations, on average a little wider than long; on the head (except neck) and prothorax the microsculpture is concealed by the rough surface.

Length, 5 mm.

Distribution. UNITED PROVINCES: Haldwani district (*H. G. Champion*).

Type in the British Museum. This is a unique specimen.

297. *Asaphidion indicum*, *Chaud.* [Plate V, fig. 5.]

Bembidium indicum Chaudoir *, Bull. Mosc. 1850, ii, p. 189 (note).

Asaphidion indicum Andrewes, Ent. Month. Mag. 1925, p. 55. t. 1, f. 9.

Colour of the upper surface æneous, with traces here and there of green and blue, vaguely purplish on the basal half of the elytra, with a short inconspicuous grey pubescence

underside black with faint green reflections ; joints 1 to 4 of antennæ (rest brown), palpi, and legs ferruginous, apex of femora, of tibiæ, and of the tarsal joints often infusate.

Head nearly a fifth wider than prothorax ; the surface strigose-punctate, neck very finely so ; antennæ rather slender, joint 2 very little shorter than 3. *Prothorax* convex, a sixth wider than long, base slightly produced at middle, oblique, close to the angles, distinctly narrower than apex, sides obtusely angulate, hind angles slightly obtuse, not projecting, without seta ; median line very fine, subfoveate at the point, where it joins the shallow front transverse impression, base compressed, almost constricted, a slight fovea on each side, surface closely reticulate-punctate. *Elytra* elongate-oval, a half wider than prothorax, quite three-fourths longer than wide, shoulders very square, border slightly sinuate on each side before apex ; striation only vaguely defined, suture a little raised behind, surface nearly even, a little impressed between the dorsal pores, which are placed at a fourth and three-fifths respectively, apical pore indistinct, surface moderately and closely punctate, a little less closely towards apex, without any smooth areas at sides, the pubescence inconspicuous, hardly forming any distinct patches. The microsculpture, where visible between the punctures on the elytra, consists of rather faint nearly isodiametric meshes. *Sterna* punctate and slightly pubescent ; the striation on the first ventral segment is obsolete.

Length, 4 mm.

Distribution. PUNJAB : Simla (*Boys*) ; Kotgarh (*S. N. Chatterjee*) ; Dharmsala and Mandi, Dhalu (*H. G. Champion*). UNITED PROVINCES : Dehra Dun, Dobhalwala ; West Almora and Haldwani (*H. G. Champion*) ; Mussooree, Woodstock Falls (*M. Cameron*) and Dhobi Ghat (*M. Bose*) ; Chakrata division, Konain and Bindal Gad (*M. Cameron*), Jaunsar (*H. G. Champion*), Bodyar, Chulli Khud, Kanasar, Sijla Gad, Manjgaon, and Dodora Khud (all *S. N. Chatterjee*). BENGAL : Sitamarhi ; Darjeeling (*R. W. G. Hingston*) ; Kurseong (*F. H. Gravely*) ; Ghum district, Tiger Hill (*M. Cameron*).

Type in Mr. René Oberthür's collection.

298. *Asaphidion substriatum*, *Andr.* [Plate V, fig. 6.]

Asaphidion substriatum Andrewes, Ent. Month. Mag. 1925, p. 56, t. 1, f. 10.

Colour of the head and prothorax dark green, the elytra æneous, with some purplish patches near base, underside greenish æneous, ventral surface brown ; joints 1 to 4 of antennæ and legs ferruginous, rest of antennæ and tarsi fuscous. Pubescence very slight and almost invisible.

Head very slightly wider than prothorax ; surface coarsely rugose-punctate, longitudinally striate between the eyes, neck minutely striate ; antennæ submoniliform, joint 3 hardly longer than 2. *Prothorax* convex, a seventh wider than long, base rather narrower than apex, produced at middle, sub-emarginate on each side, oblique quite close to the angles, sides sharply rounded in front but not angulate, strongly sinuate near base, hind angles projecting laterally, rather sharp, though slightly obtuse, without seta ; median line fairly deep, not reaching extremities, front transverse impression obsolete, base depressed, with a slight fovea on each side near the angles, surface coarsely rugose-punctate. *Elytra* ovate but with square shoulders, rather more than a half wider than prothorax and as much longer than wide, border slightly sinuate on each side near apex ; vaguely striate and uneven, chiefly on the basal half, stria 1 rather more distinct than the others, 3 very irregular ; dorsal pores large and conspicuous, at about a third and two-thirds respectively ; surface covered with punctures of moderate size, fairly close together and closer towards base than apex, two small smooth shiny areas at sides at about a half and three-fourths respectively, the faint pubescence in certain lights forming vague, hardly visible patches. Microsculpture irregular on the elytra, the meshes on average wider than long and quite distinct between the punctures ; on the head and prothorax the meshes are moderately wide but almost completely concealed by the puncturation.

Length, 4.4 mm.

Distribution. PUNJAB : Seraj, Jibhi, 6000 feet (*H. G. Champion*). UNITED PROVINCES : West Almora (*H. G. Champion*).

Type in the British Museum.

299. *Asaphidion ornatum*, *Andr.* [Plate V, fig. 7.]

Asaphidion ornatum Andrewes, Ent. Month. Mag. 1925, p. 57, t. 1, f. 11.

Colour dark bluish green beneath, bronze-green above, sides of elytra bright metallic green, with short grey pubescence, elytra each with a wide purple stripe of irregular outline down the middle, reaching to three-fourths from base ; joints 1 to 4 of antennæ, femora, and tibiæ flavous, rest of antennæ, apex of tibiæ, and tarsi fuscous.

Head rather wider than prothorax, a slight ridge on each side in front, the surface closely and confluent punctate, substrate behind ; antennæ fairly long, filiform, slightly dilated towards apex, joint 2 clearly shorter than 3. *Prothorax* convex, about a fourth wider than long, base strongly

produced at middle, slightly emarginate on each side, narrower than apex, sides obtusely angulate, sinuate close to base, hind angles nearly right but rather rounded and inconspicuous, without seta; median line short but clearly cut, base transversely depressed, with a shallow fovea on each side, surface closely and confluent punctate. *Elytra* ovate but with square shoulders, about three-fifths wider than prothorax, a half longer than wide, border sinuate on each side near apex; no regular striation, but intervals 3, 5, and 7 irregularly raised, with some depressions along their margins, the suture raised towards apex; dorsal pores large and conspicuous, at about a fourth and two-thirds respectively, and within the purple area; surface finely and closely punctate, a little less closely here and there at sides, with some patches of grey pubescence. Microsculpture formed by somewhat transverse meshes, largely concealed by the puncturation and pubescence.

Length, 4-4.75 mm.

Distribution. UNITED PROVINCES: West Almora (*H. G. Champion*); Mussooree, Dhobi Ghat (*M. Bose*); Chakrata division, Konain (*M. Cameron*), Bindal Gad (*M. Cameron* and *S. N. Chatterjee*), Bear Garden (*H. G. Champion*), Bodyar (*S. N. Chatterjee*).

Type in the British Museum.

300. *Asaphidion triste*, sp. nov. [Plate I, fig. 3.]

Colour black, head and prothorax æneous, elytra vaguely æneous along sides, underside with some metallic reflections; base of palpi, basal half of joints 1 to 4 of antennæ, femora and tibiæ (except at extremities), and first tarsal joint ferruginous. The surface covered with a short grey pubescence.

Head as wide as prothorax; surface (except neck) finely strigose-punctate; antennæ stout, dilated at apex, joint 3 evidently longer than 2. *Prothorax* convex, about a fifth wider than long, base produced at middle, emarginate on each side, rather narrower than apex, sides strongly rounded, subangulate a little before middle, sinuate before base, front angles blunt but projecting a little forward, hind angles sharply rectangular, projecting a little laterally and furnished each with a pore and seta; median line moderately deep at middle, not reaching extremities, basal sulcus and foveæ rather shallow, surface closely, finely, and confluent rugose-punctate. *Elytra* moderately convex, nearly a half wider than prothorax, a little more than a third longer than wide, border not sinuate before apex; striation vague and irregular but visible here and there, so that the surface, which is finely and densely punctate, has a somewhat rough appearance,

the rather vague patches of grey pubescence not masking the puncturation; dorsal pores large but not very deep, at about a fourth and three-fifths respectively. Microsculpture of the elytra distinct, formed by fine lines irregularly disposed; practically none visible on the head (except neck) or on the prothorax, owing to the irregular surface.

Length, 4.25 mm.

Distribution. BENGAL: Darjeeling. SIKKIM: Lepchajagat, 7000 feet (*J. C. M. Gardner*).

Type in the British Museum.

The left elytron is missing in the unique specimen, which is otherwise in fair condition. The presence of a seta at the hind angles of the prothorax, unknown in the other Indian species of the genus, seems to show some affinity with *A. semilucidum* Motch. from China and Japan.

Genus BEMBIDION.

Bembidion Latreille, Hist. Nat. Crust. et Ins. iii, 1802, p. 82; Müller, Kol. Rundsch. 1918, p. 26; Andrewes, Key to the Tibetan species of *Bembidion*, Trans. Ent. Soc. Lond. 1930, p. 10; Jedlička, Bestimmungstabelle der mir bekannten *Bembidion*—Arten aus China, Acta Soc. ent. Čech. xxx, 1933, p. 1.

Ocydromus Schellenberg, Helv. Ent. ii, 1806, pp. 16–17.

Bembidium Stephens, Ill. Brit. Ent. Mandib. ii, 1828, p. 29; Dejean, Spec. Gen. v, 1831, p. 31; Lacordaire, Gen. Col. i, 1854, p. 382; Ganglbauer, Käf. Mitteleur. i, 1892, p. 149; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 16.

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Notaphus Stephens, Ill. Brit. Ent. Mandib. ii, 1828, pp. 2 and 17.

Princidium Motschulsky, Bull. Mosc. 1864, ii, p. 181.

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Emphanes Motschulsky, Bull. Mosc. 1864, ii, p. 185.

Bracteon Bedel, Faune Col. Bass. Seine, i, 1879, p. 27.

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Daniela Netolitzky, Wien. Ent. Zeit. 1910, p. 210.

Trichoplataphus Netolitzky, Ent. Blätt. 1914, p. 51 = *Triporus* Andrewes, Ent. Month. Mag. 1921, p. 251.

Notaphocampa Netolitzky, Ent. Blätt. 1914, p. 167.

Pamirium Netolitzky, Ent. Mitt. ix, 1920, p. 112.

Microserrullula Netolitzky, Arch. Naturg. lxxxvii, 1921, A. 7, p. 185 = *Serrula* Netolitzky (not Mörch.), Wien. Ent. Zeit. 1910, p. 209.

Notaphomimus Netolitzky, Wien. Ent. Zeit. 1931, p. 175.

Andrewesa Netolitzky, Wien. Ent. Zeit. 1931, p. 180.

Thaumatoeryphus Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 95.

TYPE, *Cicindela quadrimaculata* L. (Palearctic and nearctic regions.)

Colour generally black, blue, or green, often with pale spots or fasciæ on the elytra.

Body glabrous, usually elongate and shiny, more rarely dull, the elytra nearly always exhibiting a microsculpture, which sometimes extends to the head and prothorax.

Head usually with more or less large and prominent eyes, adjoining the buccal fissure, with two supraorbital setæ; frontal furrows nearly always present, generally deep, parallel, and uneven, sometimes diverging a little behind and sometimes extending on to the clypeus, more rarely converging in front, and quite exceptionally duplicated; antennæ of varying length, nearly always filiform, but at times moniliform, fully pubescent from joint 4, but joint 3 is also moderately pubescent; labrum transverse, generally truncate, sexsetose; clypeus transverse, bisetose, the clypeal suture lightly impressed; mandibles rather short, the right one slightly toothed at base; mentum with a small tooth in the emargination; ligula bisetose, paraglossæ narrower than ligula and extending a little beyond it; maxillæ hooked at apex and furnished with a row of bristles along the inner margin, outer lobe two-jointed; maxillary palpi with the penultimate joint pubescent and strongly dilated at apex, the apical joint very small, subulate; labial palpi similar but much smaller; surface frequently impunctate but often with one or two fine punctures at sides behind, rarely coarsely punctate.

Prothorax cordate or quadrate, base usually a little produced at middle, its sides horizontal but sometimes a little oblique, the sides bisetose, the hind angles as a rule sharply rectangular, often with a small longitudinal carina adjoining the angle; median line generally fine, sometimes much deeper close to base, the front transverse impression shallow, the hind one deeper, the basal foveæ often small but nearly always fairly deep, the base more or less depressed, usually uneven, and frequently punctate, the disk practically impunctate.

Elytra nine-striate, stria 1 nearly always present and at least moderately deep throughout, 8 sometimes resembling the other striæ but generally deep on the apical half and joining 9 at about basal third, the other striæ often fairly deep on the disk but frequently shallow at sides and obsolete towards apex; scutellary striae as a rule rather slight, a short apical stria usually present in continuation of stria 5 or stria 7, and a pore within it which stands out very clearly when, as sometimes happens, the stria disappears; the border behind the shoulder is generally smooth, but sometimes serrate, and after rounding the shoulder it continues inwards to a point opposite stria 4 or stria 5 without reaching the scutellum; occasionally a slight ridge, called the "clavicular fold," runs downwards from the termination of the border towards the mesosternum; two dorsal pores at about a third and two-thirds are nearly always present on interval 3, generally

adjoining stria 3, but sometimes on or near the middle of the interval, a third pore occurring quite exceptionally.

The underside is usually smooth and impunctate, but sometimes the proepisterna are punctate and sometimes there are at least traces of pubescence on the venter; last ventral segment ♂ with a single seta on each side, ♀ with two setæ. In the ♂ protarsi the first two joints are dilated and produced inwardly at apex.

The microsculpture of the upper surface is in this genus a great aid to the identification of the different species. Sometimes it is wanting altogether, sometimes a network of isodiametric meshes covers the whole of the upper surface, sometimes the elytra are covered with extremely fine transverse lines, visible only under the microscope ($\times 80$), but much more often they exhibit a reticulation of more or less transverse meshes, frequently obsolete on the head and on the disk of the prothorax, though the neck nearly always shows traces of isodiametric meshes.

Range. World-wide.

These insects frequent damp places and are usually found on the shores of lakes, rivers, and streams from sea-level to snow-level, *B. nivicola* having been discovered at the base-camp of the Mount Everest Expeditions at 16,500 feet. In India very few species are found in the plains, the great majority frequenting the Himalayan valleys, where they seem to be amongst the commonest insects at from 3000 to 10,000 feet. So many of these valleys are still awaiting entomological exploration that many new species will no doubt be added in future years to the 104 of which the descriptions are recorded here.

The larvæ of some European species have been described, but nothing appears to be known of the early stages of those comprised in the Indian fauna.

The palæarctic species have been very fully dealt with in recent years by Dr. F. Netolitzky, whose numerous works should be studied by any one working at the genus, and by Dr. J. Müller, who has published a key to the European and circum-Mediterranean species; but the foundations of this had already been laid many years ago by Ganglbauer, in his 'Käfer von Mitteleuropa.' In these works use is made of a large number of subgenera, designed chiefly for the reception of European species, and a list of such of these as appear to be connected with the Indian fauna, along with the necessary references, has been given here. Many of the Indian species, however, cannot be accommodated in the palæarctic scheme, and rather than add further names to the already overburdened subgeneric list I have, in the subjoined keys, divided them into groups, each of which bears the name of the species

first described in that group. These keys are intended for the ready determination of the Indian species, so far as they are at present known, and, had they been prepared on strictly phylogenetic lines, a considerably larger number of groups would have been required, many of them containing one species only. In the present state of our knowledge it has not seemed desirable to attempt this, and the grouping therefore in certain cases, *e. g.*, the *kara*-, *varium*-, and *niloticum*-groups, is an artificial one, the species included in them being for the most part not nearly related to each other.

Key to the Groups of Bembidion.

- 1 (6) Border of elytra angulate at shoulder.
- 2 (3) Lateral margin of elytra serrate and
setulose *quadricolle*-group, p. 97.
- 3 (2) Lateral margin of elytra not serrate
and setulose.
- 4 (5) Elytra with parallel or gently rounded
sides; dorsal pores on interval 3;
microsculpture reticulate or absent;
colour bronze or æneous *loricatum*-group, p. 102.
- 5 (4) Elytra with the sides strongly rounded;
dorsal pores small, adjoining stria 3;
microsculpture formed by fine trans-
verse lines; colour green or blue .. *clarum*-group, p. 105.
- 6 (1) Border of elytra rounded at shoulder.
- 7 (8) Head coarsely punctate except along
median line; frontal furrows parallel
but short and shallow; prothorax
without carina in the hind angles;
microsculpture isodiametric; colour
æneous or cupreous [p. 108.
compactum-group,
- 8 (7) Head smooth, sometimes with one or
two punctures at sides of vertex,
rarely on disk; frontal furrows
generally deep and parallel, more
rarely converging in front.
- 9 (34) Head with the frontal furrows parallel
and generally uneven.
- 10 (33) Elytra with the dorsal pores on or ad-
joining stria 3.
- 11 (12) Prothorax with the median line shallow
in front, deep and sulciform behind;
proepisterna with some coarse punctures;
apical stria obsolete, the pre-
apical pore isolated *cameroni*-group, p. 110.
- 12 (11) Prothorax with the median line not
deeper behind; proepisterna nearly
always impunctate.
- 13 (32) Metasternal process bordered, at least
behind, or at sides.
- 14 (15) Venter with some slight scattered
pubescence; elytral striae entire .. *kara*-group, p. 113.
- 15 (14) Venter glabrous; elytral striae some-
times entire, but often evanescent
at sides and behind.

- 16 (17) Prothorax generally subquadrate, the sides behind nearly straight, the hind angles obtuse; elytral intervals with an irregular row of minute punctures down the centre of each; elytra æneous, legs and antennæ black or piceous [p. 115.
punctulipenne-group,
- 17 (16) Prothorax cordate; elytral intervals without punctures other than the dorsal pores.
- 18 (23) Second elytral stria hardly shallower towards apex; base of prothorax not coarsely punctate.
- 19 (20) Elytra flat, the striae lightly impressed; prothorax large, its base rugose or strigose, but practically impunctate; microsculpture reticulate, nearly as visible on prothorax as on elytra .. *nivicola*-group, p. 120.
- 20 (19) Elytra more or less convex, the striae on disk punctate and moderately deep; prothorax with its base often finely punctate; microsculpture nearly always reticulate, but generally invisible on disk of prothorax.
- 21 (22) Legs and antennæ black or piceous, joint 1 of antennæ (rarely 2 also), tibiæ, and tarsi sometimes reddish; second elytral stria equally deep throughout [p. 124.
kaschmirensis-group,
- 22 (21) Legs and at least joint 1 of antennæ more or less pale; second elytral stria sometimes a little shallower towards apex [p. 134.
eutherum-group,
- 23 (18) Second elytral stria evidently shallower at or disappearing before apex.
- 24 (31) Elytra unicolorous, or, if pale, sometimes with a dark discal spot, if dark, the apical border sometimes tinged with red. (Exceptionally in dark species a vague apical spot is just visible on the elytra.)
- 25 (26) Antennæ and legs black or dark ferruginous, elytra bronze or æneous . *braminum*-group, [p. 141.
- 26 (25) Antennæ with at least joint 1 and the base of joints 2 and 3, together with the greater part of legs, ferruginous to flavous.
- 27 (30) Elytra black, dark green, or blue.
- 28 (29) Apical stria of elytra present and generally well developed, the pre-apical pore inconspicuous [p. 143.
bracculatum-group,
- 29 (28) Apical stria of elytra obsolete, the pre-apical pore isolated or, at least, standing out very clearly *kempi*-group, p. 150.
- 30 (27) Elytra pale, with or without a dark discal spot *notatum*-group, p. 154.
pamirensis-group,
- 31 (24) Elytra bi- or tricolorous [p. 156.
radians-group, p. 181.
- 32 (13) Metasternal process unbordered or with only a rudimentary border; small dark æneous or greenish species

- 33 (10) Elytra either with the dorsal pores placed on interval 3 or with the striae wanting on the disk, so that the position of the pores is indeterminate. *varium*-group, p. 188.
- 34 (9) Head with the frontal furrows converging in front, at least on the clypeus [p. 199.
niloticum-group,

Key to the quadricolle-group.

- 1 (10) Colour mainly dark bronze or aeneous; elytral striae with small round punctures, the microsculpture formed by meshes which are at least slightly transverse.
- 2 (7) Elytra with some pale markings; at least the tibiae and basal joints of antennae pale.
- 3 (6) Elytra with the apex pale, joints 5-11 of antennae dark; sides of prothorax evidently sinuate before the hind angles; elytral striae moderately impressed.
- 4 (5) Elytra with the apical fifth or sixth and the whole of the legs pale; elytral striae disappearing near apex; microsculpture formed by strongly transverse meshes. Length 5-7 mm. *splendens*, Andr., p. 98.
- 5 (4) Elytra pale at extreme apex only, femora dark; elytral striae visible to apex; meshes of the microsculpture irregular, on average only a little wider than long. Length 4.5-5.5 mm. [p. 98.
xanthacrum, Chaud.,
- 6 (3) Elytra pale, with the three or four inner intervals and marginal channel dark, antennae and legs pale; sides of prothorax barely sinuate before the hind angles; elytral striae and punctures very fine; microsculpture formed by strongly transverse meshes. Length 5 mm. [p. 99.
luridipenne, Schaum,
- 7 (2) Elytra uniformly dark; antennae (except the underside of the basal joint) and tibiae (except on the basal half) dark; the meshes of the microsculpture slightly wider than long.
- 8 (9) Elytral striae very clearly punctate in front, the punctures visible to near apex, striae 8 punctate, surface moderately shiny. Length 4.75-5.25 mm. [p. 100.
quadricolle, Motch.,
- 9 (8) Elytral striae very finely punctate in front, the punctures almost invisible on apical third, stria 8 impunctate, surface dull. Length 4.6 mm. . . . *discordans*, Net., p. 101.

- 10 (1) Colour bright bronze; striæ normally punctate close to base and apex, formed elsewhere by half-moon-shaped transverse punctures (convex forwards), quite as wide as the smooth intervals between the rows; the meshes of the microsculpture very clear, isodiametric throughout. [p. 101.
Length 5-5.5 mm. *luniferum*, Andr.,

301. *Bembidion splendens*, Andr.

Bembidium splendens Andrewes, Ent. Month. Mag. 1923, p. 95.

The species is closely allied to *B. xanthacrum*, but differs in the following particulars, among which the larger size is perhaps the most evident. The upper surface is darker and there are sometimes blue as well as green reflections, while the paler parts are flavous, the legs entirely so, and the pale area at the apex of the elytra is larger. Head similar, the frontal furrows obsolescent. The prothorax is slightly wider and flatter, but otherwise differs only in having a rather shallower basal sulcus. On the elytra the striæ are less impressed, obsolete near apex, the punctures in them finer and more numerous; the microsculpture is rather finer, with somewhat wider meshes.

Length, 5-7 mm.

Distribution. UNITED PROVINCES: West Almora, Ranikhet, and River Sarda Gorge, all in Kumaon; Jaunsar, in the Chakrata division (all *H. G. Champion*).

Type in the British Museum.

302. *Bembidion xanthacrum*, Chaud.

Bembidium xanthacrum Chaudoir *, Bull. Mosc. 1850, ii, p. 175 (note); Andrewes, Ent. Month. Mag. 1921, p. 249.

Bembidium xanthotelum Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 287; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Colour bronze-green above, piceous beneath, apex of venter ferruginous; palpi, joints 1 to 3 of antennæ, with basal half of joint 4, base and apex of femora, tibiæ, tarsi, and apex of elytra, covering from a sixth to an eighth of their length, flavous; rest of femora and extreme apex of tibiæ and tarsal joints piceous.

Head with short shallow furrows, a slight longitudinal engraved line at each end of the clypeal suture; eyes large and moderately prominent; antennæ filiform, reaching basal fifth of elytra. *Prothorax* moderately convex, sub-quadrate, contracted more in front than behind, two-fifths wider than head, three-fifths wider than long, base bisinuate.

front angles projecting forward, sides nearly straight in front and behind, rounded (sometimes subangulate) at about middle, sinuate quite close to base, hind angles sharply rectangular, with a very slight carina; median line slight, basal sulcus moderately deep between the short foveæ, the base bordered on each side between the fovea and the angle, surface smooth, basal area somewhat uneven. *Elytra* moderately convex, oval, a sixth wider than prothorax, nearly two-thirds longer than wide, border serrate, making a sharp angle at shoulder and extending inwards to the base of stria 4; punctate-striate, the striae fine, the punctures very small, disappearing towards apex, 8 deep, joining the marginal channel behind shoulder, scutellary striole very fine, apical stria deep; intervals nearly flat, 3 with two pores adjoining stria 3, surface smooth. Microsculpture isodiametric and coarsely engraved on the head; on the prothorax and elytra the meshes, which average about twice as wide as long, are more finely impressed, and the surface is shiny. *Sternum*: prosternal process coming to a sharp point; metasternal process unbordered.

Length, 4.5-5.25 mm.

Distribution. BOMBAY: Belgaum, Khanapur (*H. E. Andrewes*). SIND: Karachi (*T. R. D. Bell*). PUNJAB: Simla. UNITED PROVINCES: Fyzabad (*R. W. G. Hingston*); Almora, Tanakpur, Ranikhet, and Jaunsar (Chakrata) (all *H. G. Champion*); Dehra Dun (*H. G. Champion* and *M. Cameron*). CENTRAL PROVINCES: Hoshangabad, Nerbudda River (*E. A. D'Abreu*). MADRAS: Manganallur; Nilambur (*C. F. C. Beeson*); Nellore, Mopad (*F. H. Gravely*). BENGAL: Sundarbans (*F. W. Champion*). BIHAR: Pusa; Chapra (*Mackenzie*); Dinapore. ASSAM: Mangaldai (*S. W. Kemp*). BURMA: Ruby Mines (*Doherty*); Rangoon (*L. Fea*). SIAM. LAOS. TONG-KING.

Type in Mr. René Oberthür's collection; that of *xanthotelum* in the Genoa Civic Museum.

303. *Bembidion luridipenne*, Schaum.

Bembidium luridipenne Schaum*, Berl. Ent. Zeitschr. 1860, p. 199; Andrewes, Ann. Mag. Nat. Hist. (9) xix, 1927, p. 108.

Colour of head and prothorax bronze-green; elytra (including the epipleura), palpi, antennæ, and legs flavous, but the elytra have the basal border, interval 9, and an elongate oval spot extending outwards to stria 4, reaching base but not apex, piceous with greenish reflections; underside piceous, venter brown.

Head as in *xanthacrum*, the antennæ a little shorter and thicker. *Prothorax* moderately convex, contracted more in

front than behind, about a third wider than head, nearly three-fifths wider than long, base bisinuate, front angles projecting forward, sides evenly rounded, with hardly a trace of sinuation before base, hind angles sharp, though slightly obtuse, without carina; impressions obsolescent except for the short, shallow basal foveæ, between which and the angles the base is bordered on each side, surface very smooth. *Elytra* moderately convex, oval, a fifth wider than prothorax, not quite three-fifths longer than wide, border serrate, making a sharp angle at shoulder, and extending inwards to the base of stria 4; punctate-striate, as in *xanthacrum*, but rather more lightly, the scutellary stria, apical stria, and dorsal pores all similar. The microsculpture of the head is isodiametric and very distinct, as in *xanthacrum*, but that of the prothorax and elytra is much finer, and on the elytra the meshes are strongly transverse (on average quite four times as wide as long). Pro- and metasternal processes similar.

Length, 4.5–5 mm.

Distribution. BENGAL: Calcutta (*F. H. Gravely*); Sundarbans (*F. W. Champion*). BIHAR: Pusa.

Type in the Berlin University Zoological Museum.

304. *Bembidion quadricolle*, *Motch.*

Bembidium quadricolle Motschulsky, Insectes de la Sibérie, Mém. Acad. Sci. St. Pétersb. v, 1844, p. 270; Müller, Kol. Rundsch. vii, 1918, p. 55.

Bembidium incerticeps Chaudoir *, Bull. Mosc. 1850, ii, p. 173.

Bembidium sp., Andrewes, Rec. Ind. Mus. xviii, 1919, p. 199; id., Ann. Mag. Nat. Hist. (9) xiv, 1924, p. 588.

Colour bronze, sides of upper surface sometimes greenish, venter mainly piceous; base of the palpi, underside of joint 1, and base of joints 2–4 of the antennæ, the middle of the tibiæ, and most of tarsi ferruginous.

Head with short shallow furrows, one or two slight striæ on each side adjoining eye; eyes large and moderately prominent; antennæ slender, filiform, extending a little beyond base of elytron, surface smooth. *Prothorax* moderately convex, subquadrate, contracted in front but hardly so behind, quite a third wider than head, nearly three-fifths wider than long, nearly as wide at base as at middle, gently rounded in front, faintly sinuate behind, the front angles projecting rather sharply forwards, the hind angles sharp but slightly obtuse, with only a vestige of a carina; median line and front transverse impression very slight, basal sulcus moderately deep between the very short foveæ, the base bordered on each side between the fovea and the angle, surface smooth. *Elytra* rather flat, oval, a fourth wider than prothorax, a half longer than wide, border serrate, making a sharp angle

at shoulder and continued inwards to the base of stria 4; punctate-striate, the striae very shallow, the punctures conspicuous in front but tending to disappear behind, 8 deep, joining marginal channel behind shoulder, scutellary striae and apical stria well developed; intervals flat, 3 with two pores adjoining stria 3, surface smooth. Microsculpture isodiametric, conspicuous, so that the surface is only moderately shiny. *Sternum*: metasternal process unbordered.

Length, 4.75–5.25 mm.

Distribution. SEISTAN: Nasratabad (*S. W. Kemp*). IRAK. ASIA MINOR. SOUTH-EAST EUROPE.

Type in the Moscow University Museum; that of *inserticeps* in Mr. René Oberthür's collection.

305. *Bembidion discordans*, *Net*.

Bembidion discordans Netolitzky *, *Att. Mus. Civ. Trieste* xii, 1934, p. 89.

This species differs very little either in size, colour, or form from small examples of *quadricolle* Motch., but the surface is dull and there are only traces of red on joint 1 of the antennae and on the basal half of the tibiae. Head and prothorax similar to those of *quadricolle*, but the basal foveae of the latter are shallower and more finely engraved. On the elytra the puncturation of the striae is much finer; on the basal two-thirds the striae are not impressed but are formed by the punctures, but on the apical third the striae are lightly impressed and the punctures have almost disappeared. The eighth stria is impunctate. The microsculpture is similar, though more distinct.

Length, 4.6 mm.

Distribution. KASHMIR: Shigar, 7000 feet.

Type in the Milan Civic Museum. This is at present unique.

306. *Bembidion luniferum*, *Andr.* [Plate III, fig. 4.]

Bembidium luniferum Andrewes, *Ent. Month. Mag.* 1924, p. 192.

Colour of the upper surface bright bronze, under surface darker, metallic green, metasternum and venter nearly black, with metallic reflections; palpi, apex of elytra (rather narrowly), base of femora, a wide ring round tibiae, and tarsi more or less ferruginous. Joints 1–2 of the antennae are brassy, the rest black, but the underside of joint 1 is red. The dark apical half of tibiae has a strong bluish reflection.

Head wide, with very large eyes, coarsely shagreened and therefore rather dull, a brighter slightly greenish area along inner margin of eye, a short ridge on each side in front, no frontal furrows; antennae short and thick. *Prothorax* rather flat, but declivous to front angles, a third wider than head

and as much wider than long, widest at base, which is strongly bisinuate at middle, oblique at sides, apex considerably narrower than base, emarginate, but straight in the middle, the front angles, though rounded, projecting a good deal forwards; sides nearly straight to middle, thence barely contracted and sinuate near hind angles, which are sharp, right, and project laterally, with a well-marked carina, a little removed from the narrow side-border; both basal and apical transverse grooves well marked, the fine median line between them continued faintly to extremities, the basal groove at middle removed from margin over a little more than half the width, basal foveæ obsolete; surface shagreened but moderately shiny, faintly rugose-punctate in front of the basal groove, chiefly near hind angles. *Elytra* moderately convex, elongate-oval, a third wider than prothorax, a half longer than wide, border finely serrate, forming an angle at shoulder and continuing inwards to a point where striae 4 and 5 almost or quite join; the striae impressed only near apex, punctate close to base and apex, formed elsewhere by half-moon-shaped transverse punctures (convex forwards), as wide as or wider than the smooth intervals between the rows, stria 8 very deep, joining 9 at basal fourth, scutellary stria rather long, apical stria deep, joining 7; intervals flat, the two pores on 3 near stria 3, at about two-fifths and three-quarters from base; surface smooth and rather shiny. Microsculpture rather coarsely isodiametric throughout. Underside smooth and glabrous; metasternal process unbordered.

Length, 5-5.5 mm.

Distribution. UNITED PROVINCES: Fyzabad (R. W. G. Hingston); Naini-Tal district, Kaladhungi (R. Hodgart).

Type in the British Museum; co-types in the Indian Museum, Calcutta, and in my collection.

This is one of the most distinct forms known to me in the genus, the wide lunate pores in the elytral striae distinguishing it at once from all other Indian species.

Key to the loricatum-group.

- 1 (4) Head with the inner margin of the front supraorbital pore carinate; microsculpture very distinct. Length 5 mm.
- 2 (3) Prothorax with the base hardly wider than the apex; elytra with the border forming a very obtuse angle at shoulder, surface dull, the dorsal pores on each side occupying the whole of the interval, the microsculpture formed by meshes slightly wider than long.....

[p. 103.
loricatum, Andr.,

- 3 (2) Prothorax with the base evidently wider than the apex; elytra with the border forming a right angle at shoulder, surface shiny, dorsal pores rather small, microsculpture formed by isodiametric meshes [p. 104.
chalcodes, sp. nov.,
- 4 (1) Head with a pair of carinæ on each side; surface bright, dorsal pores small; no microsculpture. Length 3.5 mm. . [p. 104.
striaticeps, sp. nov.,

307. *Bembidion loricatum*, Andr. [Plate III, fig. 5.]

Bembidium loricatum Andrewes, Ent. Month. Mag. 1922, p. 239.

Colour of the upper surface bright bronze, shagreened and not very shiny, underside piceous-black with slight greenish reflections; joints 1-2 of antennæ and base of 3-4 (rest dark brown), palpi (penultimate joint fuscous), tibiæ, and tarsi ferruginous, femora piceous bronze.

Head with shallow furrows, vaguely striate near eyes, which are moderately prominent; surface with a few minute punctures on vertex; antennæ barely reaching basal fourth of elytra. *Prothorax* moderately convex, a fourth wider than head, a third wider than long, base barely wider than apex, sides rounded and sinuate close to the hind angles, which are right, with a well-marked carina; median line fine, base depressed, with deep rounded foveæ, basal area finely rugose-punctate, with some traces of longitudinal striation, surface smooth with some faint cross-striation. *Elytra* moderately convex, with square shoulders and parallel sides, about a fourth wider than prothorax, five-sixths longer than wide, basal border forming an obtuse angle at shoulder and continuing inwards to the base of stria 4; finely punctate-striate, 1 continued to and deeper at apex, the rest obsolete behind, 8 deep throughout, joining the marginal channel behind shoulder, scutellary striole fairly long, apical stria faint, so that the pore is fairly conspicuous; intervals flat, 3 with two very large and conspicuous pores at a third and two-thirds, occupying the whole interval, the area surrounding the front one slightly transversely depressed, surface smooth. Microsculpture isodiametric, distinct throughout. *Sternum*: prosternal process rounded and inconspicuous; metasternal process unbordered, but with a depression behind it.

Length, 5 mm.

Distribution. PUNJAB: Lyallpur (*K. N. Trehan*). UNITED PROVINCES: Ranikhet, West Bhatkot, and West Almora, all in Kumaon (*H. G. Champion*); Fyzabad (*R. W. G. Hingston*). BIHAR: Pusa.

Type in the British Museum.

308. *Bembidion chalcodes*, sp. nov.

Colour æneous; joints 1-2 of antennæ, with base of 3-4, and tibiæ ferruginous; rest of legs and antennæ piceous or very dark red.

Head with rather shallow parallel furrows, bounded by an external carina on each side; surface impunctate; eyes only moderately prominent; antennæ extending little beyond base of elytra. *Prothorax* convex, subquadrate, about a third wider than head and as much wider than long, rather strongly contracted in front but not much behind, so that base is evidently wider than apex, sides rounded in front, hardly perceptibly sinuate behind, hind angles right, sharp, and with a well developed carina; median line fine, hind transverse depression fairly deep at sides, where it joins the basal foveæ, between which and hind angle on each side the base is bordered, surface nearly smooth, basal area with a few vague punctures. *Elytra* convex, ovate, a half wider than prothorax, three-fifths longer than wide, the border forming an angle at shoulder and continuing inwards to stria 4; finely punctate-striate, striæ entire, 1 deep to apex, but all the rest much fainter behind, the outer fainter than the inner ones, the punctures very clear, stria 8 very deep, joining marginal channel behind shoulder, scutellary striole rather short, apical stria slight, joining 7, the pore clearly visible; intervals flat, 3 with two small pores on the interval, surface impunctate. Micro-sculpture isodiametric, finer on the prothorax than on the head and elytra. *Sternum*: metasternal process with a transverse groove behind it, the extremity (viewed from below) raised above the surrounding surface.

Length, 5 mm.

Distribution. BASHAHR STATE.

Type in my collection. A unique specimen.

Allied to *B. pogonoides* Bates from Japan and *B. vitiosum* Gemm. and Har. from North-East Asia, but not quite agreeing with either of them.

309. *Bembidion striaticeps*, sp. nov.

Colour brassy above, shiny; joints 1-2 of antennæ, with base of 3-4, and tibiæ ferruginous; rest of antennæ and legs and underside piceous or black.

Head with fairly deep irregular furrows, diverging a little behind, a pair of carinæ on each side, adjoining eye, continued forward to base of clypeus, the sulcus dividing them terminating at mid-eye level, two slight oblique striæ on each side between them and vertex; eyes fairly prominent; antennæ small, moniliform, extending little beyond base of elytra; front finely punctate, vertex even more finely punctate.

Prothorax convex, cordate, a fifth wider than head, a half wider than long, base as wide as apex, rounded in front, sinuate a little before the hind angles, which are slightly obtuse but sharp and project a little laterally, a pronounced carina present; median line very fine, front transverse impression shallow, slightly rugose-striate, basal area coarsely rugose-punctate, surface generally sparsely microscopically punctate. *Elytra* moderately convex, ovate, a half wider than prothorax and also a half longer than wide, somewhat dilated behind, the shoulders rather square, the border forming an obtuse angle at shoulder and continuing inwards to the base of stria 4; finely punctate-striate, the striae entire, very lightly impressed, and only a little shallower behind, the punctures very clear, 8 deep, joining marginal channel behind shoulder, scutellary striole and apical stria quite distinct, the latter joining stria 5, the surface adjoining and outside it slightly costate; intervals flat, an irregular line of microscopic punctures down the centre of each, 3 with two pores on the interval, but not far from stria 3. No microsculpture. *Sternum*: metasternal process unbordered.

Length, 3.5 mm.

Distribution. PUNJAB: Simla Hills, 7000–8000 feet (*M. Cameron*).

Type in the British Museum. This is the only specimen seen.

Perhaps allied to *B. æruginosum* Gebl. and other Siberian species, which are unknown to me in nature, but the basal border of the elytra instead of being rounded is clearly angulate at the shoulder.

Key to the clarum-group.

- 1 (2) Colour of the elytra very dark green; antennæ reaching basal third of elytra; base of prothorax evidently wider than apex; elytral striae lightly impressed. Length 4.5–6 mm. *clarum*, Andr., p. 105.
- 2 (1) Colour of the elytra blue; antennæ reaching middle of elytra; base of prothorax barely wider than apex; elytral striae moderately deep. Length 4.75–5 mm. *eurydice*, Andr., p. 107.

310. *Bembidion clarum*, Andr.

Bembidium clarum Andrewes, Ent. Month. Mag. 1923, p. 98; id., Ent. Month. Mag. 1926, p. 67.

Bembidion clarum Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 4 and 11.

Colour of the upper surface black, with faint green or blue reflections, elytra dark green or dark blue, underside piceous

black; joints 1-2 of antennæ and basal half of joints 3-4 (rest fuscous), palpi, venter, and legs ferruginous, surface shining and (to the naked eye) quite smooth.

Head with fairly deep parallel furrows, extending to clypeus; eyes moderately prominent, antennæ slender, reaching basal third of elytra, surface impunctate. *Prothorax* small, convex, cordate, a little wider than head and about a third wider than long, extremities truncate, a distinct border at sides of apex, sides gently rounded and sinuate at a fifth from base, hind angles right, with a small but distinct carina; median

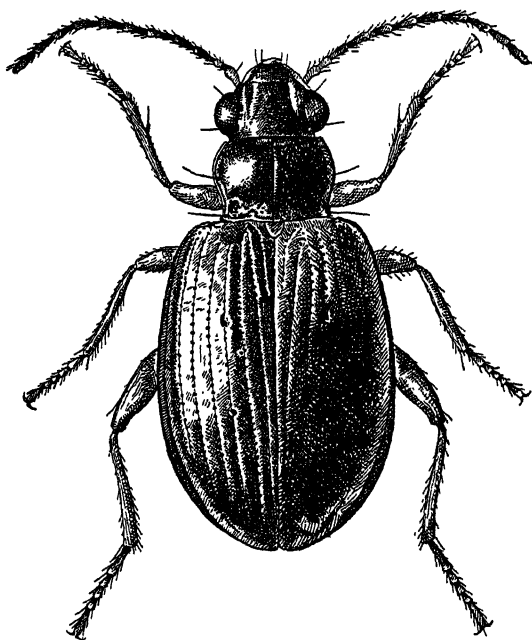


Fig. 18—*Bembidion clarum* Andrewes.

line moderately impressed, widening to a shallow furrow close to base, which is rather lightly depressed, foveæ deep and rounded, surface smooth, base indistinctly rugose-punctate. *Elytra* moderately convex, ovate, twice as wide as prothorax and a little more than a half longer than wide, shoulders rather rounded, but the basal border, which is very short, extending between striae 5 and 6, meets the lateral border at a sharp angle; finely punctate-striate, more faintly at sides and behind, though the punctures are visible to near apex, stria 1 deep throughout, 8 deep behind, joining the marginal

channel behind shoulder, scutellary stria fairly long, apical stria very slightly developed, joining 5; intervals flat, 1 very narrow and carinate at apex, 3 with two large pores, adjoining stria 3, at about a third and two-thirds respectively. The microsculpture consists of excessively fine transverse lines placed very close together, visible only under a high power ($\times 80$). Metasternal process bordered at sides only, between the mesocoxæ.

Length, 4.5–6 mm.

Distribution. UNITED PROVINCES: West Almora, Chakrata, Khaula, Ranikhet, Tanakpur, Naini-Tal, Upper Gumti Valley, Sarda and Gori River Gorges (all *H. G. Champion*). GARHWAL: Siuni Gad (*H. G. Champion*). SIKKIM: Gielle Khola in the Tista River Valley (*H. Stevens*). ASSAM: Yambung and Janakmukh, bank of Dihong River (*S. W. Kemp*); Naga Hills and Manipur, Shugnu (*S. N. Chatterjee*).

Type in my collection.

There is considerable variability, in addition to differences of size and colour, in the numerous specimens examined, but all seem to belong to one species. The prothorax is sometimes more rounded in front and more strongly sinuate behind; the striæ of the elytra and their punctures are sometimes deeper than in the typical form, and occasionally the fragment of basal border is obsolete.

311. *Bembidion eurydice*, *Andr.*

Bembidium eurydice Andrewes, Ent. Month. Mag. 1926, pp. 67 and 73.

Colour beneath piceous, the venter pale brown; head and prothorax dark metallic green, elytra dark blue; joints 1 and 2 of the antennæ, with the basal half of joints 3 and 4, and the whole of the palpi and legs pale flavous, rest of antennæ fuscous.

Head with deep parallel furrows, extending on to clypeus; eyes prominent; antennæ fairly thick and long, reaching middle of elytra; surface impunctate. *Prothorax* rather small, cordate, moderately convex, a little wider than head and a third wider than long, base barely wider than apex, sides rather strongly rounded in front and sinuate at a fourth from base, hind angles right, sharp, and projecting a little laterally, with a small carina; median line fine, widening into a shallow furrow close to base, front transverse impression shallow, hind one fairly deep, foveæ small but distinct, surface smooth, the whole basal area rugulose. *Elytra* convex, ovate, not quite twice as wide as prothorax and not quite a half longer than wide, sides strongly rounded, basal border very short, between striæ 5 and 6, meeting side-border at a sharp angle; punctate-striate, dorsal striæ fairly deep, 1, 2,

and 8 also fairly deep near apex, lateral striæ a little shallower, especially 7, 8 joining marginal channel behind shoulder, scutellary striole not very long, apical stria moderately deep, joining 5; intervals moderately convex, 1 very narrow near apex, 3 with two pores, at a third and two-thirds, adjoining stria 3. The microsculpture of the elytra consists of extremely fine transverse lines, visible only under a high power ($\times 80$); on the head and prothorax there is a reticulation, the meshes of which are mostly wider than long. Underside glabrous, metasternal process unbordered.

Length, 4.75–5 mm.

Distribution. UNITED PROVINCES: Kumaon, Gori River Gorge, 5000–9000 feet (*H. G. Champion*).

Type in the British Museum.

Key to the compactum-group.

- | | |
|--|---------------------------------------|
| 1 (2) Head punctate but not striate; prothorax cordate, barely a third wider than long; elytra æneous, shiny, with only a faint microsculpture (♀).
Length 4.25–4.75 mm. | [p. 108.
<i>compactum</i> , Andr., |
| 2 (1) Head striate-punctate; prothorax subquadrate, more than a half wider than long; elytra cupreous, dull, the microsculpture (♀) very distinct. Length 4 mm. | <i>beesoni</i> , Andr., p. 109. |

312. *Bembidion compactum*, Andr. [Plate III, fig. 7.]

Bembidium compactum Andrewes, Ent. Month. Mag. 1922, p. 240.

Bembidion compactum Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 2 and 5.

Colour of the upper surface cupreous, sometimes brassy, and occasionally with purplish blotches, underside black; joints 1–2 of antennæ, with the base of 3–4, palpi, and legs ferruginous, rest of antennæ, penultimate joint of palpi, and knees fuscous.

Head with shallow furrows, extending on to clypeus, which is bordered in front; eyes rather flat; antennæ reaching basal fourth of elytra, surface punctate, sparsely on vertex, middle of front and neck smooth. *Prothorax* cordate, very convex, very little wider than head and barely a third wider than long, extremities truncate, sides of base slightly oblique, sides moderately rounded and sinuate close to the hind angles, which are right, though they project a little laterally, without trace of carina; median line fairly deep, confined to disk, base deeply depressed, almost constricted, foveæ hardly distinguishable, the whole basal area coarsely rugose-punctate, occasionally with some punctures along front margin, surface otherwise smooth, with some vague cross-striation. *Elytra*

convex, with very square shoulders, sides nearly parallel, the border rounding the shoulder and reaching a point between striae 4 and 5, nearly twice as wide as prothorax and about a half longer than wide; striae closely and moderately punctate, all deep to apex, though 4-6 are a little fainter behind, scutellary striole very long, extending to quite a third from base, apical stria deep, forming an integral part of stria 7; intervals convex, especially at sides, 3 with two large pores at about a third and two-thirds, the surrounding area depressed near the front one, surface smooth and shiny. Microsculpture practically absent in the ♂, formed by isodiametric meshes and confined to the elytra in the ♀. Sterna coarsely punctate at sides, metasternum with a few punctures at base and apex, metasternal process with a semicircular border; ventral surface smooth and impunctate.

Length, 4.25-4.75 mm.

Distribution. UNITED PROVINCES: West Almora, Ranikhet, Bhatkot, Swal River Basin, River Sarda Gorge, and Haldwani (all *H. G. Champion*); Dehra Dun, River Jong (*S. N. Chatterjee*), Nim Nadi (*M. Cameron*), Asan River (*J. C. M. Gardner*), Phandowala, Suswa River (*H. G. Champion*), and Mothrawala, Rispana River. ASSAM: Manipur, Shugnu (*S. N. Chatterjee*).

Type in the British Museum.

Allied to the palæarctic species *punctulatum* Drap., but a shorter and more compact insect, differing somewhat in colour. The head and prothorax are much less punctate, the frontal foveæ are deeper, the base of the prothorax is more constricted and more rugose, the elytra shinier.

313. *Bembidion beelsoni*, *Andr.*

Bembidion beelsoni Andrewes, Ann. Mag. Nat. Hist. (10) xi, 1933, p. 100; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 89 (*bessoni* err. typ.).

Colour cupreous; underside, antennæ, and legs black, with metallic reflections.

Head with rather shallow parallel furrows, extending on to clypeus, eyes only moderately prominent; genæ very short; antennæ short, submoniliform, surface coarsely striate-punctate at sides and behind, vertex finely rugose-punctate. *Prothorax* convex, nearly a fourth wider than head, and more than a half wider than long, base a little wider than apex, sides strongly rounded in front and slightly sinuate close to the hind angles, which are sharp though a little obtuse, without carina; median line fine, transverse impressions slight, basal foveæ deep, surface fairly closely rugose-punctate, more sparsely on disk, where it is also transversely striate. *Elytra* moderately convex, very little dilated behind, not

quite a half wider than prothorax, exactly a half longer than wide, shoulders square, the border rounding the shoulder and ending in a slight tooth above stria 5; lightly punctate-striate, the striae shallower towards apex, 8 deep behind, joining the marginal channel behind shoulder, 7 hardly shallower than the other striae, joining the deep apical stria behind; intervals nearly flat, 3 with two pores on the interval though near stria 3, and surrounded—especially the front one—by a depressed area covering two intervals (on the right elytron this area is much larger, on the left one the hind pore is missing), 8 subcostate along the outer side of the apical stria. Microsculpture isodiametric and distinct throughout. *Sternum*: episterna impunctate, metasternal process bordered.

Length, 4 mm.

Distribution. KASHMIR: Khelanmarg, 11,000 feet, 28. v. 1928 (C. F. C. Beeson); Razhdhainangan, 12,000 feet (L. Caporiacco).

Type in the British Museum.

The species is allied to the palæarctic *B. bipunctatum* L., but it is smaller, has no carina in the hind angles of the prothorax, and the microsculpture of the elytra is much more distinct.

Key to the cameroni-group.

- | | |
|---|--------------------------------------|
| 1 (2) Colour black with faint metallic reflections; head between foveæ with one or two fine punctures only; antennæ nearly reaching middle of elytra; elytral striae moderately deep, only disappearing (except 1) close to apex. Length 5.5–6 mm. | [p. 110.
<i>exaratum</i> , Andr., |
| 2 (1) Colour brassy; head between foveæ finely punctate and sometimes rugose; antennæ only reaching basal third of elytra; elytral striae rather shallow, especially at sides, disappearing (except 1) at apical fourth. Length 5–5.75 mm. | [p. 111.
<i>cameroni</i> , Andr., |

314. *Bembidion exaratum*, Andr.

Bembidium exaratum Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 81.

Colour black, head and prothorax dark metallic green, elytra dark bluish-green; joint 1 of the antennæ, palpi, legs, and apical border of the elytra ferruginous, the rest of the antennæ brown.

Head with deep, parallel furrows, diverging behind; eyes prominent; antennæ nearly reaching middle of elytra; surface shiny, with a few punctures along the inner margins of the foveæ. *Prothorax* convex, cordate, slightly wider than

head, a fifth wider than long, base wider than apex, sides rounded in front, sinuate before base, the hind angles right and very sharp, projecting a very little laterally, and with a well marked carina; median line fairly deep in front, deeper and wider behind, basal foveæ deep, adjoining the angles, the basal area depressed and coarsely punctate. *Elytra* moderately convex, with square shoulders, the sides only widening a little behind, nearly twice as wide as prothorax, a half longer than wide, border rounding the shoulder and reaching a point midway between striae 4 and 5; striae fairly deep and finely punctate, evanescent behind, but only disappearing close to apex, 1 continued to apex, 8 deep, joining marginal channel behind shoulder, 1-2 (which join), 5, and the fairly long scutellary stria all deeper close to base, apical stria obsolete, and the pore consequently isolated, intervals slightly convex, dorsal pores adjoining stria 3, surface smooth and shiny. No microsculpture. *Sternum*: proepisterna with some coarse punctures; metasternal process unbordered. Ventral segments transversely sulcate.

Length, 5.5-6 mm.

Distribution. PUNJAB: Simla Hills, Gahan, 7000 feet (*S. N. Chatterjee*), and Simla (*B. N. Chopra*); Spiti, Mankaran (*G. Babault*). KASHMIR: Jhelum Valley, Buniyar, 5000 feet (*B. M. Bhatia*). UNITED PROVINCES: Chakrata, Chulli Khud, 8000 feet (*S. N. Chatterjee*); Muktesar, 7500 feet (*T. B. Fletcher*); West Almora (*H. G. Champion*). BENGAL: Ghum (*M. Cameron*).

Type in my collection.

315. *Bembidion cameroni*, *Andr.*

Bembidium cameroni Andrewes, Ent. Month. Mag. 1922, p. 177; id., Ent. Month. Mag. 1926, p. 68.

Colour brassy above, dark red-brown beneath; joints 1-2 of antennæ, with base of 3-4 (rest fuscous), palpi (penultimate joint fuscous at apex), and legs ferruginous.

Head with deep, uneven, parallel furrows, diverging behind; eyes moderately prominent; antennæ thick, reaching basal third of elytra; middle of front punctate. *Prothorax* convex, cordate, a little wider than head, about a fourth wider than long, base slightly wider than apex, sides gently rounded in front and sinuate near base, the hind angles right and sharp but not projecting, with a distinct carina; median line deep, very deep and wide behind, the basal foveæ deep, the basal area depressed and very coarsely punctate. *Elytra* moderately convex, ovate, shoulders somewhat rounded, about three-fourths wider than prothorax and about three-fifths longer than wide, border rounding the shoulder and extending

inwards to stria 5; rather lightly punctate-striate, the striae shallower at sides, and obsolete behind from about apical fourth, stria 1 deep to apex, scutellary striole short, meeting 1-2, which join at base, in a deep angular depression on each side of scutellum, 8 deep behind, joining marginal channel behind shoulder, apical stria obsolete, the pore isolated; intervals nearly flat, 1 slightly raised, 3 with two pores, adjoining stria 3, the front one occupying most of the interval,

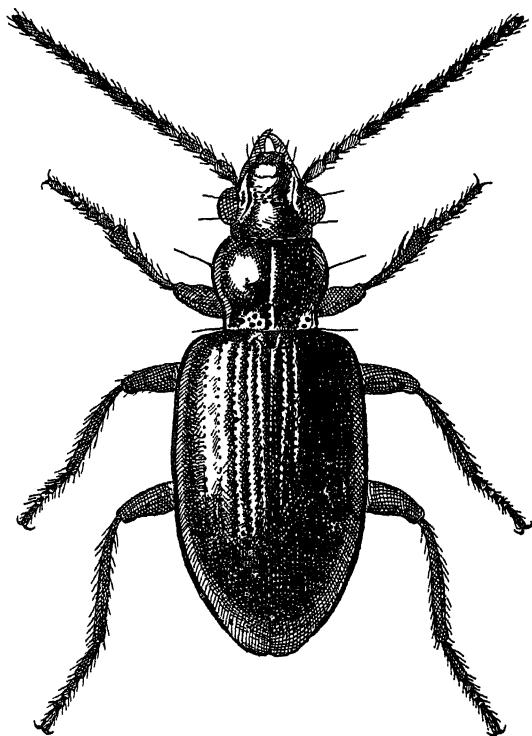


Fig. 19.—*Bembidion cameroni* Andrewes.

the area surrounding it depressed. *Sternum*: proepisterna coarsely punctate; metasternal process unbordered. Ventral segments transversely sulcate.

Length, 5-5.75 mm.

Distribution. PUNJAB: Simla Hills, Gahan, 7000 feet (*M. Cameron* and *S. N. Chatterjee*); Kulu, Monali, 6000 feet (*H. G. Champion*). ASSAM: Manipur (*Doherty*). UNITED PROVINCES: Gori River Gorge (*H. G. Champion*). CHINA: Szechuen.

Type in the British Museum.

In the Chinese example, though the front and vertex are roughly sculptured, the puncturation of the head is very slight.

Key to the kara-group.

- 1 (2) *Æneous*, dull; elytra with two dorsal pores, the striae lightly impressed, the microsculpture reticulate and very distinct. Length 3·5–3·75 mm. *elatum*, Andr., p. 113.
- 2 (1) *Blue-black*, very shiny; elytra with three dorsal pores, the striae deep, the microsculpture formed by very fine transverse lines, visible only under the microscope. Length 5–6·25 mm. *kara*, Andr., p. 114.

316. *Bembidion elatum*, Andr.

Bembidion elatum Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 12.

Colour black, upper surface *æneous*.

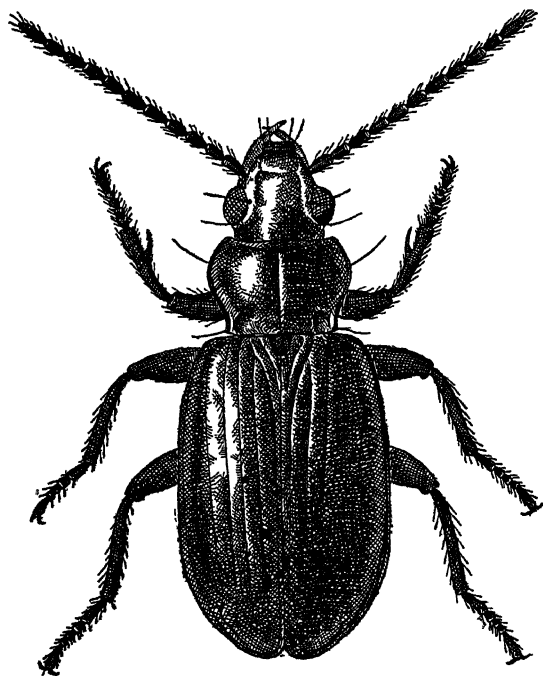


Fig. 20.—*Bembidion elatum* Andrewes.

Head with short, moderately deep, parallel furrows, ending in two shallow rounded pores which lie between the front supraorbitals; eyes rather flat; antennæ not reaching far beyond base of elytra; surface impunctate. *Prothorax* subcordate, moderately convex, a fourth wider than head and a third wider than long, sides gently rounded in front and slightly sinuate before base, hind angles right, very sharp, not projecting laterally, with only a rudimentary carina; median line fine, front transverse impression obsolete, hind one moderately deep, basal foveæ fairly deep, a small deeper impression on each side just within the carina, surface vaguely striate, transversely on disk, longitudinally along middle of base. *Elytra* flat, subovate, with rather square shoulders, two-thirds wider than prothorax, a half longer than wide, sides gently rounded, border rounding shoulder to base of stria 5; lightly striate, the striae with fine vague punctures, outer striae somewhat fainter, 5 deeper close to base, 8 deep behind, joining marginal channel behind shoulder, where there are three or four large punctures, scutellary striae rather short, apical stria distinct; intervals nearly flat, 3 with two pores adjoining stria 3, at about a half and three-quarters. Microsculpture very distinct throughout, the meshes moderately transverse on the elytra, isodiametric on head and prothorax. Metasternal process narrowly and indistinctly bordered; ventral surface with some slight scattered pubescence.

Length, 3.5-3.75 mm.

Distribution. TIBET: Pangle, 15,500 feet; Tashidzom, 14,500 feet (*R. W. G. Hingston*).

Type in the British Museum; co-type in my collection.

There is no nearly allied Indian species.

317. *Bembidion kara*, *Andr.* [Plate III, fig. 6.]

Bembidium kara Andrewes, Ent. Month. Mag. 1921, p. 250; id., Ent. Month. Mag. 1923, p. 101.

Bembidion kara Jedlička, Acta Soc. ent. Čech. xxix. 1932, p. 47; id., Acta Soc. ent. Čech. xxx, 1933, pp. 3 and 8.

Colour black, very shiny, head and prothorax with faint greenish reflections, elytra very dark blue, slightly iridescent; joint 1 of the antennæ ferruginous, rest of antennæ, palpi, and tarsi piceous.

Head with deep, uneven, parallel furrows; eyes prominent; antennæ reaching basal fifth of elytra; surface smooth. *Prothorax* cordate, moderately convex, a little wider than head, a half wider than long, base wider than apex, sides rounded in front, and gently sinuate before base, hind angles slightly obtuse but very sharp, with only a rudimentary carina;

median line, hind transverse impression, and basal foveæ all moderately deep, lateral border continued inwards on each side as far as the foveæ, surface smooth, the basal area finely and rather vaguely rugose-punctate. *Elytra* rather flat, the shoulders square, sides parallel, three-fifths wider than prothorax and as much longer than wide, border rounding the shoulder and extending inwards to stria 5; fairly deeply punctate-striate throughout, the punctures very fine and disappearing towards apex, scutellary striole long, apical stria deep, joining 5; inner intervals flat, outer ones a little convex, 3 dorsal pores, at a fourth, a half, and three-fourths respectively, adjoining stria 3. Microsculpture formed by very fine, closely placed, transverse lines, visible only under the microscope ($\times 80$). *Sternum*: metasternum with a few punctures in front and behind, sparsely pilose; metasternal process bordered at sides only. Venter sparsely pilose.

Length, 5-6.25 mm.

Distribution. PUNJAB: Simla, Jubbul, Chepal, 7400 feet, and Patharnala, 8000 feet (both *B. M. Bhatia*). UNITED PROVINCES: Western and Central Almora, Swal River basin, Kosi River (Ranikhet division), 3000 feet, and Nandhaur River (Haldwani division) (all *H. G. Champion*); Dehra Dun (*M. Cameron* and *M. Bose*); River Song (*M. Cameron*); Khairna; Siwalik Hills (*S. N. Chatterjee*). BENGAL: Namsoo, 2100 feet, and Gopaldhara, 4700 feet (*H. Stevens*). EASTERN DUARS (*H. Stevens*). ASSAM: Garo Hills, Someswari River (*S. W. Kemp* and *B. Chopra*); Naga Hills, 4000 feet (*S. N. Chatterjee*). YUNNAN. TONG-KING. LAOS. COCHIN-CHINA.

Type in my collection.

This and two other species, *B. irregulare* Net. (described further on) and *B. tambra* Andr., from Yunnan, are remarkable in having three instead of the usual two dorsal pores on the elytra. *B. kara* has been taken in large numbers by Mr. Stevens in Sikkim and by Mr. Vitalis de Salvaza in Indo-China, so that it is apparently common at least in some of the localities it frequents.

Key to the punctulipenne-group.

- 1 (6) Prothorax a third wider than long.
- 2 (3) *Elytra* rather strongly dilated behind,
three-fourths wider behind than at base,
the striae on disk moderately impressed,
the lines of minute punctures down the
middle of the intervals clearly visible
under a strong lens *punctulipenne*, Bates, [p. 116.
- 3 (2) *Elytra* moderately dilated behind, a half
wider than at base, the striae on disk
lightly impressed, the lines of punctures
along the intervals faint.

- 4 (5) Prothorax with its sides straight or even slightly rounded behind, basal area lightly rugose-punctate, elytral striæ very lightly impressed, the rows of punctures on the intervals barely visible on apical half [p. 118.
bucephalum, Net.,
- 5 (4) Prothorax with its sides faintly sinuate behind, basal area distinctly rugose-punctate, elytral striæ fine but clearly impressed, the rows of fine punctures more or less visible throughout [p. 119.
himalayanum, Andr.,
- 6 (1) Prothorax a half wider than long.
- 7 (8) Colour a fairly bright æneous, elytra flat, the striæ lightly impressed, though the puncturation is quite distinct on the disk [p. 119.
petrimagni, Net.,
- 8 (7) Colour black with a faint æneous tinge, elytra moderately convex, the striæ deep *kurram*, sp. nov., p. 120.

318. *Bembidion punctulipenne*, Bates.

Bembidium punctulipenne Bates *, Proc. Zool. Soc. 1878, p. 718; id., Scientific Results of the Second Yarkand Mission, 1891, Col. p. 18.

Bembidion platypterum Netolitzky (not Solsky), Wien. Ent. Zeit. 1910, p. 48; id., Ent. Mitt. 1920, p. 112.

Colour piceous, moderately shiny, upper surface æneous.

Head with short, but fairly deep, parallel furrows; eyes rather flat; antennæ reaching basal fourth of elytra; the surface with one or two punctures behind. *Prothorax* convex, subcordate, a fifth wider than head, fully a third wider than long, apex as wide as base, the sides of which are very oblique, sides rounded in front, straight behind, hind angles very obtuse, reflexed, with a conspicuous pore on the angle, a rudimentary carina close to the margin; median line fairly deep at middle, basal foveæ small but deep, bounded outwardly on each side by an oblique convex fold, directed from the angle towards the centre, basal area depressed, irregularly but mainly longitudinally rugose-striate, with some vague puncturation, some vague punctures and striæ along sides and front transverse impression, and some slight transverse striation on disk. *Elytra* flat, ovate, a half wider than prothorax, three-quarters longer than wide, width behind middle three-fourths greater than at shoulders, border reaching stria 5; dorsal striæ clearly impressed and finely punctate, 1 fairly deep to apex, the rest shallower at sides and behind, but visible throughout, scutellary stria short, apical stria deep; intervals slightly convex on disk only, dorsal pores small but distinct, a somewhat irregular row of small punctures running down the centre of each interval. *Microsculpture*

of the elytra fairly distinct, formed by very wide meshes ; that of prothorax just visible ; on the head some isodiametric meshes can be seen on the neck.

Length, 3.6 mm.

Distribution. PAMIR (?) (*F. Stoliczka*). Bates writes : " No locality. Most probably the Pamir."

Type in the Indian Museum, Calcutta.

So far as I am aware the type is unique, and the species may not occur in the Indian region at all ; but as the specimen was most likely taken in the Pamir I have thought it best to introduce it here.

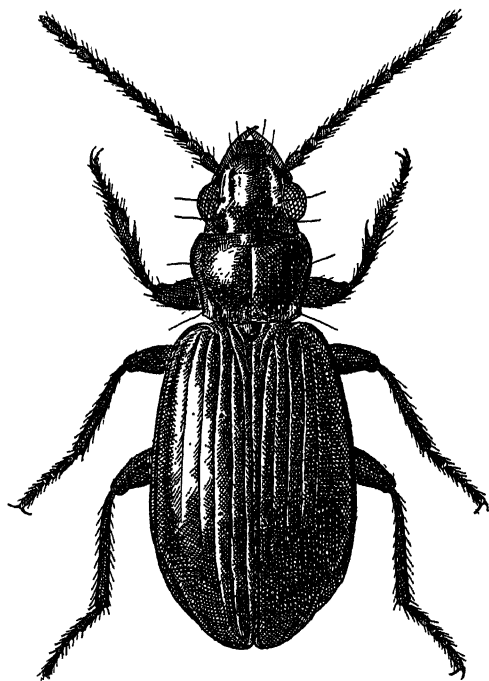


Fig. 21.—*Bembidion punctulipenne* Bates.

In 1910 Dr. Netolitzky thought it probable that Bates's species was identical with *B. platypterum* Solsky from Central Asia, and in 1920 this seems to be assumed as a fact ; this synonymy has been taken for granted in the catalogues published since that date, including my own. On coming to compare the type of *punctulipenne* with an example of *platypterum* I find wide discrepancies. In the former species,

described above, though the surface is duller and rougher, the æneous tint is a brighter one, the eyes are flatter, the margins of the prothorax, and especially the base, are much more rugose, the elytra are narrowed at base and dilated behind, so that the width behind is three-fourths greater than at shoulders, compared with about a half in *platypterus*, the striae are somewhat deeper, the microsculpture more evident, and the surface less shiny, while the punctures running down the middle of the intervals are larger.

319. *Bembidion bucephalum*, Net.

Bembidion bucephalum Netolitzky, Ent. Mitt. ix, 1920, pp. 63 and 114; id., Att. Mus. Civ. Trieste, xii, 1934, p. 99.

Colour black, upper surface dark æneous, shiny.

Head with short, moderately deep, parallel furrows; eyes not prominent; antennæ reaching basal fourth of elytra; surface with a few wrinkles at sides behind. *Prothorax* convex, subcordate, about a fifth wider than head, a third wider than long, base slightly narrower than apex, its sides oblique, sides rounded in front, nearly straight behind, the hind angles projecting on each side as a small, sharp, slightly obtuse tooth, with a slight carina adjoining the margin; median line fairly deep at middle, hind transverse impression very deep, continued at sides by the basal foveæ, basal area somewhat rugose, with a few punctures, disk with a little transverse striation. *Elytra* rather flat, subovate, with square shoulders, two-fifths wider than prothorax, three-fifths longer than wide, widest behind middle, basal border reaching stria 5; striae lightly impressed, finely and indistinctly punctate, 1 moderately deep on apical half, 2 and 5 deep close to apex, scutellary stria distinct, apical stria fairly deep; intervals nearly flat, dorsal pores adjoining stria 3, a poorly developed irregular row of minute pores running down the middle of each interval, hardly visible except close to base. Microsculpture of the elytra distinct, formed by very wide meshes, wanting on the disk of prothorax and very indistinct on the head.

Length, 3.5–4 mm.

Distribution. KASHMIR: Chhota Deosai, 13,000 feet; Indus Valley, Boorgi Nala, 12,000 feet; Braldo Valley, Kro Brok, 12,400 feet, and Thla Brok, 14,000 feet; Punmah Valley, Dumultar, 14,000 feet; Baltoro, Urdukas, 13,400 feet, Mundu, 14,400 feet, and Lopsang-Bransa, 15,000 feet (all *L. Caporiacco*). TURKESTAN. BOKHARA. TRANSCASPIA.

Type in Dr. Netolitzky's collection.

320. *Bembidion himalayanum*, Andr.

Bembidium himalayanum Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 74; id., Ent. Month. Mag. 1926, p. 67.

Colour black, shiny, upper surface dark bronze.

The species is very closely allied to *bucephalum*. The head is similar. In the prothorax the sides are faintly sinuate before the base, the hind angles sharp though obtuse and not projecting on each side as a small tooth, a raised area sometimes present on each side between the angle and the fovea, the basal area more evidently, sometimes densely, rugose-punctate, occasionally with some longitudinal striation. The elytra are flatter, more evidently dilated behind, the shoulders more nearly rectangular; the striae, though still lightly impressed, are deeper, and the punctures within them more evident, the row of fine points down the middle of each interval visible under a magnifying-glass even on the apical half. Microsculpture similar.

Length, 4-4.5 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE: Kurram Valley, Parachinar (F. W. Champion). PUNJAB: Lahul, Patseo (G. Babault); Kangra, Baijnath, 3300 feet; Dharm-sala, Triun, 9300 feet; Seraj, Jalori Pass, 10,800 feet (all H. G. Champion). TIBET: Supi River (H. G. Champion).

Type in the British Museum.

321. *Bembidion petrimagni*, Net.

Bembidion petrimagni Netolitzky, Ent. Mitt. 1920, p. 113; id., Att. Mus. Civ. Trieste, xii, 1934, p. 99.

I have in my collection one example of this species named by the author. This is a little larger than *bucephalum*, but similarly coloured. The head is similar. Prothorax a half wider than long, its sides straight behind, the hind angles sharp and almost rectangular, with a more rudimentary carina, the basal area very finely and much more distinctly rugose, the rough surface extending forward along the marginal channel to beyond middle. The elytra are flatter but otherwise nearly similar, the dorsal striae a little more impressed and the scutellary striole longer, the lines of fine punctures along the intervals very difficult to see. There is very little to distinguish either this species or *bucephalum* from the Central Asian *platypterum* Solsky.

Length, 4-5 mm.

Distribution. KASHMIR: Deosai, Lal Pani, 13,300 feet, and Baltoro, Urdukas, 14,200 feet (L. Caporiacco). PAMIR: Peter I. Mountain.

Type in Dr. Netolitzky's collection.

322. *Bembidion kurram*, sp. nov.

Colour black, with a faint æneous tinge, visible chiefly on head and prothorax, surface shiny.

Head with rather deep, subrugose, parallel furrows, extending to clypeus; eyes moderately prominent; antennæ stout, reaching basal fourth of prothorax; surface with one or two very fine punctures on each side of vertex. *Prothorax* moderately convex, subquadrate, a fourth wider than head, a half wider than long, base with its sides rather oblique, just wider than apex, sides rounded in front and then straight, but slightly sinuate immediately before base, hind angles a little obtuse but sharp, with a small carina; median line fine, front transverse impression shallow, finely rugose, hind one a little deeper, basal foveæ fairly deep, the basal area rather vaguely rugose-punctate. *Elytra* moderately convex, a little dilated behind, separately rounded at apex, a half wider than prothorax and also a half longer than wide, shoulders square, the border rounding the shoulder and terminating opposite stria 5; rather deeply punctate-striate, the striae entire but a little shallower, including 2, towards apex and at sides, 8 deep behind, joining the marginal channel behind shoulder, apical stria and scutellary striole both well developed; intervals moderately convex, with an irregular line of minute punctures down the middle of each, 3 with two fairly large pores adjoining stria 3, a costa between apical stria and margin. The microsculpture of the elytra is faint, reticulate, the meshes wide and a little oblique, very faint on the prothorax. *Sternum*: metasternal process with a very well defined border.

Length, 4.5 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE: Kurram Valley, Parachinar (*F. W. Champion*).

Type in the British Museum. The type is unique.

Key to the nivicola-group.

- 1 (4) *Colour* æneous; microsculpture of the elytra formed by isodiametric meshes. Length 5-5.5 mm.
- 2 (3) *Elytra* often with blue or green reflections, antennæ and legs black; sides of both prothorax and elytra gently rounded, base of prothorax strigose, elytra flat. Length 5 mm. *nivicola*, Andr., p. 121.
- 3 (2) *Elytra* sometimes with blue reflections in the marginal channel, joint 1 of antennæ and legs dark ferruginous; sides of both prothorax and elytra fairly strongly rounded, base of prothorax only vaguely striate, elytra moderately convex. Length 5-5.5 mm. *hingstoni*, Andr., [p. 122.

- 4 (1) Colour dark bronze or black with metallic reflections; microsculpture of the elytra formed by meshes which are evidently wider than long. Length 5.5-7 mm.
- 5 (6) Elytra dark bronze; antennæ very long, nearly reaching middle of elytra; prothorax with a raised area within the hind angles. Length 6-7 mm. [p. 123.
persephone, Andr.,
- 6 (5) Elytra usually black, with metallic (generally blue) reflections, but occasionally bronze; antennæ reaching basal third of elytra; prothorax without any raised area within the hind angles. Length 5.5-6 mm. *pluto*, Andr., p. 123.

323. *Bembidion nivicola*, Andr.

Bembidium nivicola Andrewes, Ann. Mag. Nat. Hist. (9) xi, 1923, p. 275.

Bembidion nivicola Andrewes, Trans. Ent. Soc. Lond. 1930, p. 3; Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 2 and 6; Netolitzky in Visser, Karakorum i, 1935, p. 274.

Colour black, shiny, with metallic reflections; upper surface of a deep faintly bluish-green, sometimes dark æneous, trochanters red.

Head with fairly deep, short, uneven, parallel furrows; eyes rather flat; antennæ stout, reaching basal fourth of elytra; surface impunctate. *Prothorax* cordate, rather flat, a fourth wider than head, nearly a third wider than long, base a little wider than apex, sides gently rounded and sinuate at a fourth from base, hind angles right, very sharp, with a short carina and a longitudinal impression just within it; median line rather fine, not reaching extremities, basal foveæ fairly deep, surface smooth, the basal area depressed, and finely striate-rugose. *Elytra* flat, about a half wider than prothorax and as much longer than wide, shoulders square, a little dilated behind and widest at apical third, border rounding shoulder and reaching stria 5; striæ shallow, feebly punctate, much fainter at sides, but the inner striæ are no shallower near apex, where 1 and 2 join, 8 deep behind, joining the marginal channel behind shoulder, scutellary striae short and slight, apical stria deep, joining sometimes 5, sometimes 7; intervals nearly flat, the dorsal pores small but clear, adjoining stria 3. Microsculpture practically isodiametric, the meshes being barely wider than long, distinct on the elytra, fainter on the disk of the prothorax, and very faint on the head. Metasternal process finely bordered at sides.

Length, 4.5-5.5 mm.

Distribution. KASHMIR: Daulad Beguldi (near the Karakorum Pass), 16,500 feet (*J. A. Sillem*). TIBET: Mount Everest Base Camp, Rombuk, 16,500 feet (*T. G. Longstaff* and *R. W. G. Hingston*); Tasam, Rongshar Valley, 12,500 feet (*R. W. G. Hingston*).

Type in the British Museum.

324. *Bembidion hingstoni*, *Andr.*

Bembidion hingstoni Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 11.

Colour black, upper surface æneous; joint 1 of antennæ and legs ferruginous, femora sometimes piceous.

Head with short, fairly deep, parallel furrows; eyes rather flat; antennæ reaching basal fourth of elytra; surface impunctate. *Prothorax* slightly convex, cordate, a fifth wider than head and fully a third wider than long, sides well rounded in front, sinuate at a fourth from base, hind angles right, sharp, not projecting laterally, with a more or less distinct carina; transverse impressions and the median line between them all well marked, though not deep, basal foveæ short but deep, surface smooth, base usually more or less vaguely striate, with some microscopic punctures, visible chiefly on the basal area. *Elytra* moderately convex, subovate, though with square shoulders, rather more than a half wider than prothorax and as much longer than wide, sides well rounded, the widest part behind middle, border rounding shoulder but barely reaching base of stria 5; striæ generally moderately impressed, very finely and indistinctly punctate, the outer a little shallower than the inner ones, 2 a little deeper close to base, scutellary stria rather short, apical stria short but distinct; intervals slightly convex on disk, flat at sides, 3 with two pores adjoining stria 3, at about a third and two-thirds respectively. The microsculpture of the elytra is very distinct and is formed by isodiametric meshes; on the disk of the prothorax the meshes are faint and tend to become a little wider than long; head with isodiametric meshes, obsolete on vertex. Metasternal process narrowly bordered at sides.

Length, 5-5.5 mm.

Distribution. TIBET: Kampa Dzong, Tinki Dzong, Trangso Chumbab, Kyishong, Pangle, Pang La, Lamna La (all *R. W. G. Hingston*).

Type in the British Museum.

The species is rather a variable one, especially in the depth of the elytral striæ, the width of the prothorax at base, the development of the angular carina, etc.

325. *Bembidion persephone*, Andr.

Bembidium persephone Andrewes, Ent. Month. Mag. 1926, pp. 67 and 72.

Colour piceous ; upper surface dull bronze, tibiae dark red.

Head with fairly deep, short, wide, parallel furrows, extending to sides of clypeus, neck wide ; eyes rather flat ; antennae thick, almost reaching middle of elytra ; surface impunctate. *Prothorax* cordate, rather flat, a third wider than head and as much wider than long, extremities equally contracted, apex slightly emarginate and bordered close to the angles, sides gently rounded and sinuate at a fourth from base, hind angles sharp and rectangular, with a short carina ; median line rather deep, not nearly reaching extremities, foveae wide and not very deep, surface smooth, basal area irregularly rugose-striate. *Elytra* flat, a little depressed on front of disk, two-thirds wider than prothorax, a half longer than wide, shoulders very square, gently dilated behind and widest at apical third, border rounding shoulder and reaching stria 5 ; striae shallow, finely punctate, only a little shallower at sides and behind, 2 equally impressed throughout, joining 1 at apex, 8 deep behind, joining marginal channel behind shoulder, scutellary striole moderately long, apical stria fairly deep, joining 7 ; intervals nearly flat, 3 with two well marked pores, at a third and three-fourths respectively, adjoining stria 3, surface smooth. Microsculpture reticulate, distinct, though lightly impressed, the meshes barely wider than long on prothorax and elytra, isodiametric but very faint on the head. Metasternal process depressed across the middle, distinctly bordered at sides but not at apex.

Length, 6-7 mm.

Distribution. UNITED PROVINCES : Kumaon, Shelshel, 15,750 feet (*H. G. Champion*).

Type in the British Museum ; co-types in Mr. Champion's and in my collection.

326. *Bembidion pluto*, Andr. [Plate IV, fig. 1.]

Bembidium pluto Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 72, t. 1, f. 3 ; id., Ent. Month. Mag. 1926, p. 67 ; id., Mem. Conn. Acad. x, 1934, p. 24.

Colour black, with blue or green reflections, more rarely bronze : joint 1 of the antennae beneath, tibiae and tarsi more or less brown, the legs sometimes entirely dark red.

Head with fairly deep, uneven, parallel furrows, neck wide ; eyes rather flat ; antennae thick, reaching basal third of elytra ; surface impunctate, vaguely striate at sides. *Prothorax* cordate, rather flat, a fourth wider than head, a third

wider than long, base very slightly wider than apex, sides rounded in front and sinuate a little before base, hind angles right, sharp, with a slight carina; median line and transverse impressions all moderately deep, basal foveæ rounded, fairly deep, basal area finely striate-rugose, surface otherwise smooth. *Elytra* flat, with square shoulders, somewhat dilated behind and widest at about apical third, fully a half wider than prothorax, three-fifths longer than wide, border rounding shoulder to base of stria 5; striæ shallow, finely punctate, not much shallower behind, though faint at sides, 2 equally impressed throughout, joining 1 at apex, 8 deep behind, joining marginal channel a long way behind shoulder, scutellary striole moderately long, apical stria deep, joining 7; intervals nearly flat, dorsal pores rather large, adjoining stria 3, at a third and three-fourths respectively, surface smooth. Microsculpture reticulate, very distinct on the elytra, the meshes barely wider than long, rather faint on disk of the prothorax, isodiametric but indistinct on head. Metasternal process depressed across middle, bordered at sides.

Length, 5.5–6 mm.

Distribution. KASHMIR: Nima-Mud, Tsho-Marari, and Salt Lake (all in Rupshu); Leh (all *G. Babault*); Tangyar, 14,300 feet, Lukung, 14,000 feet, and Igu, 12,000 feet (all *G. E. Hutchinson*). UNITED PROVINCES: Sagcha, Laptel, and Shelshel (all in Kumaon, *H. G. Champion*).

Type in my collection.

Key to the kaschmirensis-group.

- 1 (20) Prothorax of normal form, *i. e.*, with the base more or less truncate, its sides sometimes directed obliquely forward.
- 2 (17) Large species of 5–8 mm. in length, colour blue or blue-black, the elytral striæ clearly punctate at least on basal half.
- 3 (12) Joint 1 of the antennæ black or piceous, at least on upper surface; elytra evidently dilated behind and pointed at apex; colour blue-black or very dark blue.
- 4 (9) Prothorax with the sides of the base oblique, so that the hind angles, though sharp, are either obtuse or project laterally.
- 5 (8) Prothorax with the carinæ in the hind angles only moderately developed, converging a little forwards, middle of base almost impunctate; colour dark blue.
- 6 (7) Eyes moderately prominent, frontal foveæ irregular, antennæ reaching middle of elytra, elytra shiny, outer striæ distinct behind *aquilum*, Andr., p. 126.

- 7 (6) Eyes rather flat, frontal foveæ smooth, antennæ reaching basal fourth of elytra, elytra subsericeous, outer striæ very faint behind *leander*, sp. nov., p. 127.
- 8 (5) Prothorax with the carinæ in the hind angles strongly developed, diverging a little forwards, middle of base finely punctate; colour blue-black, the head and prothorax generally greenish *satanas*, Andr., p. 127.
- 9 (4) Prothorax with its base truncate though produced slightly at middle, the hind angles sharply rectangular, sometimes projecting a little either laterally or backwards.
- 10 (11) Elytral striæ 3 and 4 joining behind and disappearing at some distance from apex, usually with a boss immediately behind their termination; colour blue-black, sometimes with a faint greenish tinge. Length 5.5-6 mm. [p. 128.
cimmerium, Andr.,
- 11 (10) Elytral striæ 3 and 4 continued to near apex, without boss; colour dark blue. Length 5-5.5 mm. *orinum*, Andr., p. 129.
- 12 (3) Joint 1 of the antennæ reddish; elytra very little dilated behind and rounded at apex; colour blue or bright blue.
- 13 (14) Head with rather smooth, shallow frontal foveæ, distant from each other, prothorax with the front angles rounded away, the base hardly wider than the apex, the carinæ in the hind angles well developed; colour bright blue. Length 7.5-8 mm. *regale*, Andr., p. 129.
- 14 (13) Head with fairly deep irregular frontal foveæ, near together, with a very convex space between them, prothorax with the front angles evident though rounded, the base wider than apex, the carinæ in the hind angles rather slight; colour blue.
- 15 (16) Prothorax about a fourth wider than long; outer elytral striæ almost obliterated near apex. Length 5-6 mm. [p. 130.
kaschmirensis, Net.,
- 16 (15) Prothorax about a third wider than long; outer elytral striæ shallow, but quite distinct near apex. Length 7.5-8 mm. *dux*, sp. nov., p. 130.
- 17 (2) Small species of 4.5-5.5 mm. in length; colour very dark blue, with or without greenish reflections; elytral striæ as a rule less distinctly punctate, even on basal half.

- 18 (19) Hind angles of prothorax sharply rectangular, with a well developed carina; elytra strongly dilated behind and pointed at apex; upper surface with greenish reflections. Length 4.5-5.5 mm. *livens*, Andr., p. 131.
- 19 (18) Hind angles of prothorax obtuse, with only a slight carina; elytra slightly dilated behind and rounded at apex; upper surface without greenish reflections. Length 4.5-5 mm. *atrox*, sp. nov., p. 132.
- 20 (1) Prothorax abnormal, the base truncate at middle, with a semicircular emargination on each side, beyond which the hind angles project for some distance backwards *ajmonis*, Net., p. 132.

327. *Bembidion aquilum*, Andr.

Bembidium aquilum Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, par Guy Babault, Carabidæ, 1924, p. 76; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 90.

Colour black, shiny, upper surface dark blue, with faint greenish reflections, apical border of elytra narrowly red, joint 1 of antennæ piceous, sometimes red.

Head with deep, uneven, parallel furrows; eyes moderately prominent; antennæ nearly reaching middle of elytra; surface smooth, with one or two fine punctures at sides behind. *Prothorax* cordate, convex, about a fourth wider than head and barely a third wider than long, base with its sides oblique, a little wider than apex, sides rounded, sinuate a little before base, hind angles sharp, very slightly obtuse, not projecting laterally, with a distinct carina; median line and hind transverse impression moderately deep, basal foveæ fairly deep, the basal area rather finely rugose-punctate. *Elytra* rather flat, ovate, somewhat pointed at apex, two-thirds wider than prothorax, not quite a half longer than wide, widest a little behind middle, sides well rounded, border rounding shoulder and reaching the base of stria 5; punctate-striate, the striæ fairly deep throughout except that the outer, especially 7, are a little less impressed than the inner ones, 8 deep behind, joining the lateral channel behind shoulder, scutellary striole short, apical stria deep, joining 5, intervals convex, dorsal pores very distinct, adjoining stria 3. Microsculpture reticulate, formed by moderately wide meshes, rather faint even on the elytra, still fainter on the disk of prothorax and on head. Metasternal process bordered.

Length, 6-6.25 mm.

Distribution. PUNJAB: Lahul, Patseo (*G. Babault*). KASHMIR: Gund, Baltal, Mulbeck, Leh (all *G. Babault*); Gulmarg (*M. Cameron*); Skardu (*L. Caporiacco*).

Type in my collection.

The figure published with the description of this species (plate i, fig. 6) actually represents *B. orinum* Andr.

328. *Bembidion leander*, sp. nov.

Colour black, moderately shiny, upper surface blue, the elytra vaguely sericeous; apical border of elytra and under-side of joint 1 of antennæ red, apex of femora, middle of tibiæ, and tarsi dull red or piceous.

Head with moderately deep, parallel, furrows, diverging a little behind; eyes not very prominent; antennæ stout, reaching basal fourth of elytra; surface impunctate. *Prothorax* moderately convex, cordate, a fourth wider than head and as much wider than long, base a little wider than apex, its sides oblique, sides rounded in front and gently sinuate near hind angles, which are sharp though slightly obtuse, with a fine carina; median line fine, hind transverse impression and basal foveæ moderately deep, basal area rather vaguely rugose-punctate. *Elytra* rather flat, ovate, two-thirds wider than prothorax, and as much longer than wide, shoulders square, apex somewhat pointed, border reaching stria 5; rather lightly punctate-striate, the outer striae much shallower than the inner ones, 7 obsolete, 8 deep behind, joining the marginal channel in front, 3 joining 4 not far from apex, apical stria and scutellary striae both present, the latter very short; intervals slightly convex, dorsal pores adjoining stria 3. Microsculpture reticulate, the meshes moderately wide on the prothorax and elytra, practically isodiametric on the head. *Sternum*: metasternal process bordered.

Length, 5.5-6 mm.

Distribution. PUNJAB: Simla Hills, Kotkhair, 5500 feet, 10. v. 1924 (*C. F. C. Beeson*).

Type in the British Museum; co-types in the Forest Research Institute, Dehra Dun, and in my collection.

329. *Bembidion satanas*, Andr.

Bembidium satanas Andrewes, Ent. Month. Mag. 1924, p. 193; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 90.

This species seems to be hardly more than a local race of *B. aquilum*, but it is not only a little larger but the elytra are of a deep blue-black tint. The head and prothorax are almost exactly similar, but the latter is wider, nearly a half wider than long; the elytra are a little more dilated behind, the striae appear wider and the intervals rather more convex, the outer striae are noticeably less impressed, and 7 in particular is quite rudimentary. The specimens from the various

localities are not all quite alike, but do not appear to constitute more than one species.

Length, 6.5–7 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE: Chitral, Rambhur Valley, Chimiksan stream (*B. N. Chopra*). KASHMIR: Goorais Valley, 7000 feet (*J. H. Leech*); Gulmarg, 8500 feet (*M. Cameron*); Lidar Valley, Lidarwat, 9000 feet (*S. C. Anson*); Sind Valley, Gagandiyeh, 8500 feet (*E. C. Anson*), and Gund, 7000 feet (*L. Caporiacco*); Kolahoi, 11,000 feet (*E. C. Anson*).

Type in my collection.

330. *Bembidion cimmericum*, *Andr.*

Bembidium cimmericum Andrewes, Ent. Month. Mag. 1922, p. 238.

Colour dark blue-black, shiny, upper surface generally with a faint greenish tinge, joint 1 of antennæ and legs more or less piceous.

Head as in *aquilum*, but the frontal furrows are a little longer and deeper and the surface is a little striate near the eyes behind. *Prothorax* cordate, moderately convex, a fourth wider than head, fully a third wider than long, sides of base straight, sides well rounded and sinuate a little before base, hind angles sharply rectangular, with a distinct carina; median line strongly impressed at middle, hind transverse impression and basal foveæ deep, a few punctures in or near the foveæ, uneven along base, elsewhere vaguely striate. *Elytra* moderately convex, ovate, shoulders square, a half wider than prothorax, three-fifths longer than wide, the border reaching a point opposite stria 5, where it ends in a minute tooth; striæ entire, deep, finely punctate, the outer ones a little less deeply impressed, striæ 1–2 joining both at base and apex, 3–4 joining and disappearing a long way from apex, 5–7 terminating at about the same level, but 5 joins the deep apical stria, scutellary striole short but deep; intervals convex on disk, rather flatter towards sides and apex, two large pores on stria 3, at or just before middle and at three-fourths respectively, the smooth area on each side behind stria 3–4 occupied by a raised knob. Microsculpture of the elytra formed by meshes two to three times wider than long; obsolete on the head and disk of prothorax. Metasternal process bordered.

Length, 5.5–6 mm.

Distribution. PUNJAB: Simla Hills, Matiana, 8000 feet (*S. W. Kemp*), and Gahan, 7000 feet (*S. N. Chatterjee*). UNITED PROVINCES: Chakrata division, Challi Khud, 8000 feet (*S. N. Chatterjee*).

Type in the British Museum.

331. *Bembidion orinum*, Andr. [Plate IV, fig. 4.]

Bembidium cimmerium var. *orinum* Andrewes, Ent. Month. Mag. 1922, p. 239; id., in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, par Guy Babault, Carabidæ, 1924, t. 1. f. 6 (as *B. aquilum* Andr.); id., Ent. Month. Mag. 1926, p. 67.

Very near *cimmerium*, though on average very slightly smaller, the upper surface with a bluish instead of a greenish tinge. The head is slightly narrower and the eyes a little flatter. On the prothorax the transverse basal sulcus and the foveæ are both shallower. The shoulders of the elytra are more rounded, the striæ hardly as deep on the disk but a little deeper near apex, the outer striæ near base almost as deep as the inner ones, 3 to 4 continued to nearer apex and without any knob behind their termination.

Length, 5.5–6 mm.

Distribution. PUNJAB: Kulu, Parbatti Valley, 6000–8000 feet (*H. G. Champion*). UNITED PROVINCES: West Almora, Sunderdhunga Valley, 8000–12,000 feet; Gori Valley, Gori River Gorge, 5000–9000 feet, and Burphu, 11,500 feet, taken in shingle at the edge of the Gori River (all *H. G. Champion*).

Type in the British Museum.

332. *Bembidion regale*, Andr. [Plate III, fig. 8.]

Bembidium regale Andrewes, Ent. Month. Mag. 1922, p. 174; id., Ent. Month. Mag. 1926, p. 67.

Colour black; upper surface bright blue, with faint green reflections or patches, joint 1 of antennæ ferruginous, tarsi piceous. Surface very shiny.

Head with moderately deep, parallel furrows, extending on to clypeus; eyes only moderately prominent; antennæ reaching basal fourth of elytra; a small depression on vertex, one or two minute punctures at sides. *Prothorax* cordate, moderately convex, about a fifth wider than head and rather more than a fourth wider than long, base as wide as apex, its sides a little oblique, the median part somewhat produced, sides rounded, sinuate near base, hind angles sharp though slightly obtuse, projecting a little laterally, with a well-marked carina; median line fine, basal sulcus moderately deep, foveæ deep, with a short oblique impressed line at the bottom of each, basal area finely but not closely punctate, one or two punctures near front margin. *Elytra* rather flat, ovate but with square shoulders, not quite twice as wide as prothorax, two-thirds longer than wide, not much dilated behind, border rounding shoulder and terminating in a small tooth midway between striæ 4 and 5; striæ fairly deep on

disk and very clearly punctate, evanescent towards sides and apex, but 2 is only slightly shallower just before apex, 7 very faint, apical stria and scutellary striole moderately developed; intervals moderately convex on disk, two large dorsal pores adjoining stria 3. Microsculpture of the elytra formed by meshes which are a little wider than long, practically none on head and prothorax. Metasternal process conspicuously bordered.

Length, 6.5–8.5 mm.

Distribution. PUNJAB: Dharmasala. UNITED PROVINCES: Tanakpur, Haldwani, Sarda River Gorge, Gori River Gorge, Chilla (Ganges River) (all *H. G. Champion*).

Type in the British Museum.

333. *Bembidion kaschmirens*, *Net*.

Bembidion kaschmirens Netolitzky *, Ent. Mitt. 1920, p. 117.

Very closely allied to *regale*, but much smaller; similar in colour, but the legs and antennæ are piceous, the second joint of the latter sometimes ferruginous as well as the first. On the head the frontal furrows are deeper and more uneven, the space between them narrower and more convex, the antennæ more slender. The base of the prothorax is straight, hardly oblique at sides or produced at middle, the basal area even more indistinctly punctate. The elytra differ only in having more coarsely punctate striæ and rather more conspicuous dorsal pores. The microsculpture is similar.

Length, 5–6 mm.

Distribution. BASHAHR: Poo.

Type in Dr. F. Netolitzky's collection; a co-type in my collection.

334. *Bembidion dux*, sp. nov.

This species is very nearly allied to *regale*, but differs in the following particulars:—The elytra are of a darker tint of blue, joint 1 of the antennæ, tibiæ, tarsi, and the apical border of the elytra light red. On the head the frontal furrows are deeper and the vertex is smooth and impunctate. The prothorax is a little wider; in both species the central part of the base is slightly produced, but here the sides are not oblique, so that the angles, which project a little laterally, are slightly acute and very sharp; the basal area is only vaguely punctate. In the elytra the border hardly extends beyond stria 5; the striation is similar, but the puncturation of the striæ is finer and less conspicuous, being hardly visible behind middle.

Length, 7.5–8 mm.

Distribution. PUNJAB : Kulu, Parbatti Valley, 6000–8000 feet (*H. G. Champion*). UNITED PROVINCES : Kumaon, Gori River Gorge, 5000–9000 feet (*H. G. Champion*).

Type in the British Museum ; co-types in Mr. Champion's collection and in my collection.

335. *Bembidion livens*, *Andr.*

Bembidion livens Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 11 ; id., Mem. Conn. Acad. x, 1934, p. 24.

Colour black ; upper surface very dark blue, with some metallic green reflections.

Head with deep, parallel, uneven furrows, extending on to clypeus ; eyes not prominent ; antennæ nearly reaching middle of elytra ; surface smooth, but with a few punctures on each side of vertex. *Prothorax* moderately convex, cordate, a fourth wider than head and fully a third wider than long, sides well rounded in front and rather strongly sinuate at basal fourth, hind angles right, sharp, but hardly projecting laterally, with a well-marked carina ; median line fairly deep, front transverse impression obsolete except at middle, hind one vague, basal foveæ deep, somewhat removed from hind angles, disk smooth, basal area uneven and with traces of fine puncturation, some transverse striæ in front of the foveæ, some longitudinal striæ at middle. *Elytra* moderately convex, ovate, rather pointed at apex, shoulders well marked, two-thirds wider than prothorax, about a half longer than wide, sides strongly rounded, the widest part a little behind middle, the border rounding the shoulder and barely reaching base of stria 5 ; punctate-striate, the punctures not very clearly defined, the striæ fairly deep on disk, rather shallow at sides, but all distinct, scutellary striae and apical stria both fairly developed ; intervals a little convex on disk, flat at sides, 3 with two pores adjoining stria 3, just before middle and at two-thirds respectively. The microsculpture of the elytra and prothorax is formed by moderately transverse meshes, very faint on disk of prothorax ; on the head the meshes are isodiametric. Venter glabrous ; metasternal process bordered at sides only.

Length, 4.5–5 mm.

Distribution. TIBET : Yatang, 10,000 feet ; Tropde, 12,000 feet (*R. W. G. Hingston*). KASHMIR : Khalatse (?) and Himis (*G. E. Hutchinson*).

Type in the British Museum.

An example from Sikkim (Tangu, 14,000 feet) is apparently a variety of this species, but as it seems to be somewhat deformed I refrain from giving it a name.

336. *Bembidion atrox*, sp. nov.

Colour black, upper surface blue-black, shiny ; palpi, joint 1 of antennæ, tibiæ, and tarsi piceous.

Head with moderately deep parallel furrows ; eyes rather flat ; antennæ nearly reaching middle of elytra ; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head, about a third wider than long, base very little wider than apex, its sides oblique, sides rather gently rounded in front and gently sinuate near base, the hind angles sharp but very slightly obtuse, not projecting laterally, with rather a slight carina ; median line at middle and hind transverse impression moderately deep, basal foveæ deep, basal area finely and inconspicuously punctate. *Elytra* rather flat, ovate, two-thirds wider than prothorax, a half longer than wide, shoulders square, border reaching stria 5 ; rather finely punctate-striate, the puncturation feeble, the striæ hardly shallower behind, though evidently shallower at sides, 3 and 4 joining behind not far from apex, 7 barely visible, 8 deep behind, joining marginal channel behind shoulder, apical stria and scutellary striole both present ; intervals slightly convex, dorsal pores rather far back, adjoining stria 3. Microsculpture very distinct throughout, formed by a reticulation of moderately wide meshes on the prothorax and elytra, by isodiametric meshes on the head. *Sternum* : metasternal process bordered.

Length, 4.5–5 mm.

Distribution. UNITED PROVINCES (*H. G. Champion*).

Type in the British Museum.

Among the blue-black species, with dark antennæ and legs, this is the smallest yet discovered in the Himalayas. In two of the four specimens found by Mr. Champion the elytra are a little more finely striate than in the other two, one of which I have made the type.

337. *Bembidion ajmonis*, *Net*.

Bembidion ajmonis Netolitzky *, Att. Mus. Civ. Trieste, xii, 1934, p. 95, t. xi.

Colour of the upper surface very dark metallic green, palpi, antennæ, and legs piceous, but the base of the antennæ, tibiæ, and tarsi are a little lighter.

Head with short, deep, parallel furrows, each containing a few coarse punctures, a small pore on the vertex, and a few punctures at sides behind ; eyes rather flat ; antennæ reaching basal fourth of the elytra. *Prothorax* convex, about a fourth wider than head and as much wider than long, base about a fifth wider than apex, sides with a very distinct border and channel, extending from the front to the hind angle, very gently rounded in front and barely sinuate behind, base

truncate at middle but with a semicircular emargination on each side, the hind angles projecting backwards, obliquely truncate at their extremities, and each with a well marked carina; median line moderately deep, front transverse impression very slight, hind one deeper, basal foveæ deep, surface finely though sparsely punctate at sides and in front, the base a little more closely, with punctures of unequal size, middle of disk smooth. *Elytra* convex, ovate, rather more than two-thirds wider than prothorax, about a half longer than wide, border reaching a point opposite stria 6, where it forms a minute tooth, base produced on each side so as to

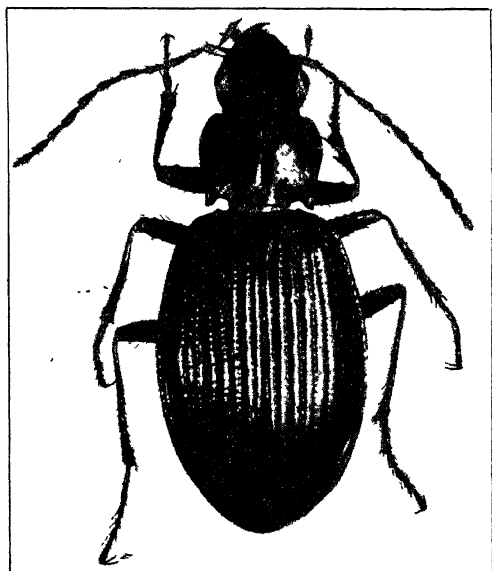


Fig. 22.—*Bembidion ajmonis* Netolitzky.

form an angle opposite the emargination in the base of the prothorax; punctate-striate, striæ 1 to 4 fairly deep throughout, 5 and 6 shallower, 7 very shallow, scutellary striae and apical stria both moderately deep; intervals convex, 3 with two pores adjoining stria 3. Microsculpture wanting on the elytra (♂) and only just traceable on the prothorax. Metasternal process bordered; prosternum with a few punctures.

Length, 5.5 mm. (4.5 in the original description).

Distribution. KASHMIR: Razdhainangan, 11,500 feet (*L. Caporiacco*).

Type in the Milan Civic Museum.

Only one ♂ specimen is known.

Dr. Netolitzky has made for this curious species the subgenus *Thaumatoperyphus*.

Key to the eutherum-group.

- 1 (12) Elytra with rounded sides, striæ 3 to 7 evanescent at sides and apex; microsculpture reticulate.
- 2 (9) Microsculpture of the elytra formed by meshes which are either isodiametric or only a little wider than long. Elytra rather flat, with gently rounded sides and distinct shoulders, the striæ on disk moderately impressed. Length 6-8 mm.
- 3 (8) Head with some striation at sides, upper surface piceous or dark green, legs ferruginous.
- 4 (7) Elytra with two dorsal pores, the meshes of the microsculpture a little wider than long.
- 5 (6) Head very distinctly striate at sides; prothorax about a third wider than long; elytra suboval, the shoulders moderately rounded; upper surface piceous, the elytra faintly iridescent. *limatum*, Andr., p. 135.
- 6 (5) Head lightly striate at sides; prothorax about a fourth wider than long; elytra subovate, the shoulders rather square; upper surface dark green *leve*, Andr., p. 135.
- 7 (4) Elytra with three dorsal pores; meshes of the microsculpture isodiametric; head striate in the furrows *irregulare*, Net., p. 136.
- 8 (3) Head without striation at sides; upper surface a fairly bright blue, legs flavous [p. 137.
ochropus, sp. nov.,
- 9 (2) Microsculpture of the elytra formed by very wide meshes. Elytra more or less convex, the striæ on disk fairly deep. Length about 5 mm.
- 10 (11) Elytra convex, with strongly rounded sides, the shoulders practically rounded away, the striæ on disk deep; head with one or two fine punctures only at sides; elytra black [p. 138.
holconotum, sp. nov.,
- 11 (10) Elytra moderately convex, with gently rounded sides, the shoulders visible though rounded, the striæ on disk moderately deep; head finely punctate, both at sides and on disk; elytra green [p. 138.
hasurada, Andr.,
- 12 (1) Elytra with parallel sides, the striæ entire, only a little fainter at sides and apex; microsculpture formed by very fine transverse lines; elytra deep blue, very shiny, legs flavous. Length about 5 mm. [p. 139.
eutherum, Andr.,

338. *Bembidion limatum*, Andr.

Bembidium limatum Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 77.

Colour piceous, the elytra iridescent; joints 1 and 2 of antennæ, apex of elytra, and legs dark ferruginous; penultimate joint of the maxillary palpi fuscous.

Head with fairly deep parallel furrows, deeper behind; eyes only moderately prominent; antennæ reaching middle of elytra; surface impunctate, obliquely striate on each side behind the front supraorbital pore. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base truncate, hardly wider than apex, sides strongly rounded, sinuate a little before base, hind angles right, very sharp, projecting a little laterally, and with a rudimentary carina; median line fairly deep on disk, front transverse impression distinct though shallow, hind one and basal foveæ deep, basal area depressed and uneven, with a few large but vague punctures. *Elytra* flat, suboval, two-thirds wider than prothorax and a half longer than wide, separately rounded at extremities, border rounding shoulder and reaching stria 5; crenulate-striate, with some punctures in the striæ near scutellum, the striæ moderately deep on disk, evanescent at sides and towards apex, 1 deep throughout, 2 a little shallower near apex, 7 formed by fine punctures only, apical stria and scutellary striae both fairly developed; intervals moderately convex on disk, dorsal pores adjoining stria 3. Microsculpture reticulate, rather faint, formed on the elytra by meshes barely wider than long, obsolete on disk of prothorax and head. Metasternal process bordered.

Length, 7 mm.

Distribution. PUNJAB: Bajaura, Kangra district (G. Babault).

Type in my collection; this is a ♀ specimen and the only one at present known.

339. *Bembidion leve*, Andr.

Bembidium leve Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 78.

Colour black, upper surface dark blue or green; joint 1 of the antennæ, apex of elytra, and legs ferruginous; penultimate joint of the maxillary palpi fuscous.

Head with fairly deep parallel furrows; eyes only moderately prominent; antennæ reaching basal third of elytra; surface impunctate, very faintly obliquely striate on each

side behind. *Prothorax* convex, cordate, hardly more than a fourth wider than head, a fifth wider than long, base wider than apex, slightly arcuate, so that its sides are a little oblique, sides gently rounded, sinuate a little before base, hind angles right, sharp, projecting a little laterally, and with a slight carina; median line and basal foveæ fairly deep, basal area depressed, moderately rugose-punctate. *Elytra* rather flat, subovate, two-thirds wider than prothorax, not quite three-fifths longer than wide, shoulders rather square, border rounding shoulder and reaching stria 5; punctate-striate, the striae moderately deep on disk, more lightly impressed at sides and near apex, 1 deep throughout, 2 very little shallower near apex, scutellary striole well developed, apical stria very deep; intervals moderately convex on disk, dorsal pores adjoining stria 3. Microsculpture reticulate, the meshes on the elytra hardly wider than long, obsolete on head and disk of prothorax. Metasternal process bordered.

Length, 6-6.5 mm.

Distribution. KASHMIR: Ladak, Mulbeck (G. Babault).

Type in my collection.

340. *Bembidion irregulare*, Net.

Bembidion irregulare Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 90.

Colour piceous, head and prothorax dull metallic green, elytra brown with greenish reflections, joints 1 to 3 of the antennæ, tibiae, and tarsi ferruginous, rest of antennæ and femora brown, penultimate joint of palpi fuscous.

Head with moderately deep, very wide, parallel furrows, some slight longitudinal striation at the bottom of each; eyes not prominent; antennæ reaching basal third of elytra; surface smooth and impunctate. *Prothorax* moderately convex, subcordate, a little wider than head and also a little wider than long, base slightly arcuate, as wide as apex, sides very narrowly bordered, rounded in front, sinuate at a fifth from base, hind angles right, sharp, with a short fine carina; median line impressed at middle, front transverse impression slight, but the disk is transversely impressed behind it, the hind impression and the small rounded foveæ moderately deep, basal area longitudinally rugose-striate, but impunctate, surface generally vaguely cross-striate. *Elytra* rather flat, with very distinct shoulders, twice as wide as prothorax, a half longer than wide, border rounding shoulder and reaching the middle of interval 5; lightly punctate-striate, the punctures very fine, the inner striae only impressed, 1 moderately impressed throughout, 2 a little shallower behind but quite distinct up to apex, 7 hardly visible, apical stria and scutellary

strie present though not much developed; intervals nearly flat, three dorsal pores adjoining stria 3, at about two-fifths, three-fifths, and five-sixths. Microsculpture distinct, the meshes on the elytra isodiametric, somewhat transverse on the prothorax, and covering the whole area. Metasternal process bordered.

Length, 6 mm.

Distribution. KASHMIR: Gund, 8000 feet; Shaksgan Valley (Tarim basin), between 13,000 and 15,000 feet (*L. Caporiacco*).

Type in the Civic Museum, Milan.

The very unusual character presented by the three dorsal pores seems to show a relationship with *B. kara*, but in other respects the two species are not very closely allied.

341. *Bembidion ochropus*, sp. nov.

Colour piceous beneath, rather bright blue above; joints 1 and 2 of antennæ and legs flavous; rest of antennæ and penultimate joint of palpi brown in the type, fuscous in the co-type; middle of venter and apical border of elytra dull red.

Head with fairly deep, uneven, parallel furrows; eyes moderately prominent; antennæ long and slender, reaching middle of elytra; surface impunctate. *Prothorax* moderately convex, cordate, a fourth wider than head and a little more than a fourth wider than long, base evidently wider than apex, sides well rounded in front and sinuate at quite a fifth from base, hind angles sharply rectangular, with a slight carina; median line fine, front transverse impression obsolete, though traces of puncturation are visible, hind impression and basal foveæ both deep, basal area vaguely rugose-punctate.

Elytra somewhat flat, oval, nearly three-quarters wider than prothorax, rather more than a half longer than wide, shoulders a little rounded, though evident, border reaching stria 5; moderately punctate-striate, the striæ nowhere deep and evanescent at sides and towards apex, 1 continued to apex, 2 visible though no deeper at apex, 3 bending outwards behind and (in the type) continued to the apical pore, 7 barely visible, 8 deep behind, joining the marginal channel behind shoulder, scutellary stria and apical stria both present; intervals a little convex on disk only, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by slightly transverse meshes, none visible on disk of prothorax. *Sternum*: metasternal process bordered.

Length, 7.5–8 mm.

Distribution. BASHAHR: Poo.

Type in my collection; co-type in Dr. G. Hauser's collection.

342. *Bembidion holeconotum*, sp. nov.

Colour black, head and prothorax with faint greenish reflections; joints 1 to 3 of antennæ, palpi, and legs pale ferruginous.

Head with fairly deep, uneven, parallel furrows, extending to clypeus; eyes moderately prominent; antennæ stout, reaching basal third of prothorax; vertex vaguely rugose, its sides with one or two punctures. *Prothorax* convex, cordate, a little less than a fourth wider than head, a little more than a fourth wider than long, apex as wide as base, sides rounded in front, sinuate near base, the hind angles sharply rectangular, with a well-developed carina; median line fine, front transverse impression slight, with a few vague punctures, basal foveæ deep, the basal area finely punctate. *Elytra* convex, ovate, pointed at apex and with well rounded sides, four-fifths wider than prothorax, a little more than a third longer than wide, border rounding shoulder and reaching a point opposite stria 5; deeply punctate striæ, the striæ entire, though somewhat shallower at sides and apex, 2 deep to apex, 8 deep behind, joining the marginal channel behind shoulder, apical stria and scutellary striole both well developed; intervals convex on disk, flatter at sides, two dorsal pores adjoining stria 3. The microsculpture is reticulate, the meshes wide and a little indistinct. *Sternum*: metasternal process bordered.

Length, 5 mm.

Distribution. KASHMIR: Batote, 7. v. 1928 (C. F. C. Beeson). UNITED PROVINCES: Mussooree, Childers Lodge, 7500 feet.

Type in my collection; co-type in the Forest Research Institute, Dehra Dun.

343. *Bembidion hasurada*, Andr.

Bembidium hasurada Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 77.

Bembidion hasurada Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 2, 4, and 10; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 93.

Colour black, upper surface a fairly bright green or, more rarely, blue; palpi, joints 1 to 3 of antennæ, and legs pale ferruginous.

Head with deep, uneven, parallel furrows; eyes not prominent; antennæ reaching basal third of elytra; sides of vertex punctate, the punctures, though small, being larger and more numerous than in the allied species. *Prothorax* cordate, moderately convex, a fourth wider than head and a fifth wider than long, base a little wider than apex, its sides only slightly oblique, sides rounded and sinuate just before base,

hind angles right, sharp, and projecting a little laterally, with a slight carina; median line moderately impressed, confined to disk, basal foveæ fairly deep, basal area depressed, surface lightly transversely striate, the base finely rugose-punctate. *Elytra* moderately convex, ovate, about a half wider than prothorax, two-thirds longer than wide, the border rounding the shoulder and reaching stria 5; punctate-striate, fairly deeply on disk, moderately at sides and behind, striae 1 and 2 deep to apex, where they meet, joining the striae at base and deeply impressed at that point, apical stria deep; intervals moderately convex, at least on disk, dorsal pores fairly conspicuous. The microsculpture of the elytra is formed by very wide meshes, but on the head and disk of prothorax it is obsolete. Metasternal process bordered.

Length, 5-5.5 mm.

Distribution. KASHMIR: Mulbeck (*G. Babault*); Batote (*C. F. C. Beeson*); Chenab Valley, Raman (*B. M. Bhatia*); Gulmarg, 8500 feet, and Aphar Wat, 13,000 feet (*M. Cameron*); Kangan (*L. Caporiacco*). PUNJAB: Spiti, Pulga (*G. Babault*); Simla Hills, Matiana, 8000 feet (*S. W. Kemp*), and Kotgarh, 7000 feet (*S. N. Chatterjee*); Kulu, Naggar (*H. G. Champion*). BASHAHR: Poo. UNITED PROVINCES: West Almora and Naini-Tal (*H. G. Champion*); Chakrata, Binal Gad, 7000-8000 feet, and Bodiyar, 8300 feet (*S. N. Chatterjee*); Mussooree, Childers Lodge, 7500 feet.

Type in my collection.

344. *Bembidion eutherum*, *Andr.*

Bembidium eutherum Andrewes, Ent. Month. Mag. 1923, p. 96.

Bembidion eutherum Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 2 and 9.

Colour black, shiny, upper surface very dark blue; palpi (penultimate joint fuscous), joints 1 and 2 of antennæ, with basal half of 3 and 4, apical border of elytra, apical half of femora, tibiae, and tarsi flavous.

Head with moderately deep parallel furrows; eyes fairly prominent; antennæ slender, not quite reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head and a little more than a fourth wider than long, base truncate, rather wider than apex, sides rounded, sinuate close to base, the hind angles right, sharp, and furnished with a short carina; median line fine, basal foveæ fairly deep, basal area somewhat depressed, finely and rather sparsely punctate. *Elytra* ovate, convex, quite three-fifths wider than prothorax, a half longer than wide, shoulders square, sides parallel at middle, border rounding

shoulder and reaching stria 5 ; striæ entire, fairly deep, very clearly punctate on basal half, the punctures smaller, but the striæ very little shallower either at sides or near apex, 1 and 2 deep throughout, scutellary striole rather long, apical striole deep, joining 7 ; intervals moderately convex, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by very fine transverse lines, visible only under a high power ($\times 80$), invisible on disk of prothorax. Metasternal process

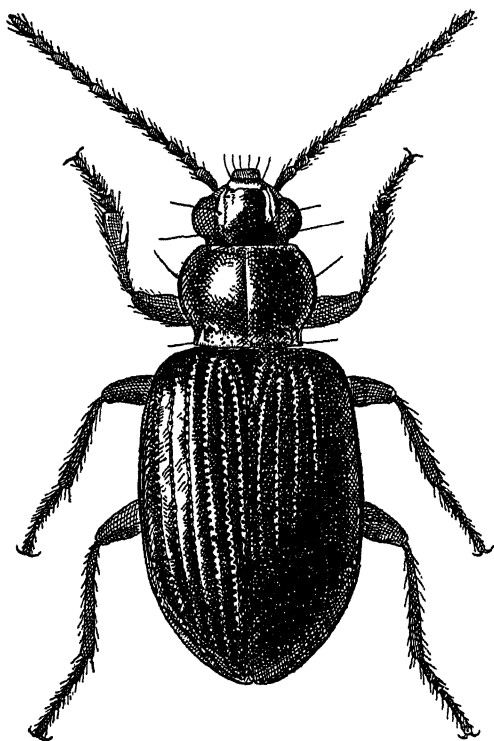


Fig. 23.—*Bembidion eutherum* Andrewes.

bordered ; metepisterna elongate, very strongly bordered at sides.

Length, 4.5–5 mm.

Distribution. PUNJAB : Simla Hill States, Matiana (*S. W. Kemp*) ; Kangra, Shahpur, 4000 feet (*H. G. Champion*). UNITED PROVINCES : Naini-Tal, Jalaban ; Dehra Dun and Mussooree, Mossy Falls and Kenti Falls (*M. Cameron*) ; West Almora, Sarda River Gorge, Tanakpur, Ranikhet,

Haldwani, Chilla (Ganges River), and Hardwar (Ganges River) (all *H. G. Champion*); Chakrata division, Chulli Khud, 8000 feet (*S. N. Chatterjee*). EASTERN DUARS (*H. Stevens*). SIKKIM: Tista Valley, Gielle Khola (*H. Stevens*). ASSAM: Pasighat and Kobo, bank of Dihong River (*S. W. Kemp*); Naga Hills, 4000 feet (*S. N. Chatterjee*).

Type in my collection.

Very rarely specimens are met with which have a small reddish spot near the apex of each elytron.

Key to the braminum-group.

- | | |
|---|--------------------------------------|
| 1 (2) Elytra bronze, dull, with a microsculpture of transverse lines, striæ very lightly impressed, evanescent from middle, dorsal pores large and conspicuous. Length 4-5 mm. | [p. 141.
<i>braminum</i> , Andr., |
| 2 (1) Elytra dark æneous, very shiny, without microsculpture, striæ moderately impressed, evanescent from three-fourths, dorsal pores small. Length 3.5-4.5 mm. | <i>gagates</i> , Andr., p. 142. |

345. *Bembidion braminum*, Andr.

Bembidium braminum Andrewes, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 442.

Colour black, upper surface dark bronze; palpi and legs more or less piceous, joint 1 of antennæ beneath, with base of joints 2 to 4, and apex of elytra reddish.

Head with deep, parallel, rather uneven furrows, diverging behind; eyes moderately prominent; antennæ reaching basal third of elytra; a few punctures on each side of vertex and some vague cross-striation in front. *Prothorax* convex, cordate, a fifth wider than head, about a third wider than long, base slightly wider than apex, its sides a little oblique, sides rounded, faintly sinuate behind, hind angles a little obtuse but sharp, with a slight carina; median line and basal foveæ moderately deep, basal area somewhat depressed, moderately rugose-punctate. *Elytra* convex, ovate, three-fifths wider than prothorax and two-fifths longer than wide, shoulders a little rounded, border reaching stria 5; finely punctate-striate, the striæ obsolete at sides and on apical third, 1 fairly deep on apical half, 2 visible throughout and a little deeper close to apex, scutellary striole short, apical stria fairly deep; intervals flat, 1 very narrow and convex towards apex, dorsal pores conspicuous, adjoining stria 3, surface glossy. Microsculpture of the elytra reticulate, the meshes very wide, obsolete on disk of prothorax and head. Metasternal process bordered.

Length, 4–5 mm.

Distribution. MADRAS : Palni Hills, Kodaikanal, 6700–7200 feet, on shores of lake and banks of pool (*S. W. Kemp*).

Type in the Indian Museum, Calcutta ; co-types in my collection.

346. *Bembidion gagates*, *Andr.* [Plate IV, fig. 2.]

Bembidium gagates Andrewes, in *Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya*, 1914, par Guy Babault, *Carab.* 1924, p. 72, t. 1, f. 4.

Bembidion gagates Jedlička, *Acta Soc. ent. Čech.* xxx, 1933, pp. 4 and 10 ; *Netolitzky*, *Att. Mus. Civ. Trieste*, xii, 1934, p. 96 ; *id.*, in *Visser, Karakorum*, i, 1935, p. 274.

Colour black, very shiny, upper surface dark æneous, tarsi more or less piceous.

Head with moderately deep uneven furrows, diverging a little behind ; eyes moderately prominent ; antennæ nearly reaching middle of elytra ; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head and about a third wider than long, base faintly arcuate, slightly wider than apex, sides rounded, sinuate close to the base, hind angles sharp, very slightly obtuse, with a distinct carina ; median line very fine, hind transverse impression and basal foveæ fairly deep, base finely punctate. *Elytra* convex, oval, but with rather square shoulders, a half wider than prothorax and quite three-fifths longer than wide, border rounding shoulder and reaching stria 5 ; striæ rather lightly impressed but very clearly punctate, finer at sides and obsolete towards apex, 1 moderately deep and 2 visible throughout, 7 just visible, scutellary striae and apical stria both present, but rather shallow ; intervals nearly flat, 1 narrowed and raised behind, dorsal pores small, adjoining stria 3. Surface generally smooth and polished, without microsculpture. Metasternal process bordered.

Length, 3.75–4.25 mm.

Distribution. NORTH-WEST INDIA. The species is common throughout the Western Himalayas up to 10,000 feet, but it has not yet been found east of Kumaon.

Type in my collection.

346 a. *Bembidion gagates* var. *sindicum*, *Netolitzky*.

Bembidion gagates indicum Netolitzky, nov. subsp., *Att. Mus. Civ. Trieste*, xii, 1934, p. 97 ; *id.*, in *Visser, Karakorum*, i, 1935, p. 275.

The variety differs only from the type-form in having a small pale spot towards the apex of each elytron.

Key to the bracculatum-group.

- 1 (12) Elytral stria 2 visible throughout, lightly impressed before, but sometimes fairly deep at apex, apical stria well developed.
- 2 (9) Head with at least one or two punctures on disk or at sides.
- 3 (6) Narrow, rather slender species, the elytra more or less oval, without microsculpture.
- 4 (5) Eyes moderately prominent, elytra suboval, though the shoulders are quite visible, striæ distinctly punctate, elytra blue, femora ferruginous. [p. 144.
lysander, sp. nov.,
- 5 (4) Eyes flat, elytra oval, the shoulders rounded away, striæ indistinctly punctate, elytra dark æneous, femora mainly piceous p. 144.
psilax, sp. nov., p. 144.
- 6 (3) Wide, stoutly built species, the elytra ovate, with evident shoulders, a microsculpture present.
- 7 (8) Prothorax rather strongly narrowed behind, the base finely and sparsely punctate, hardly wider than apex, elytra blue, a little dull, femora flavous [p. 145.
surdum, sp. nov.,
- 8 (7) Prothorax not much narrowed behind, the base closely and distinctly punctate, evidently wider than apex, elytra blue-black, very shiny, basal half of femora piceous [p. 146.
phædrum, Andr.,
- 9 (2) Head impunctate.
- 10 (11) Prothorax two-fifths wider than long, upper surface dark, faintly bluish-green, legs ferruginous, with the basal two-thirds of femora piceous, microsculpture formed by meshes not much wider than long. Length over 5.5 mm. [p. 146.
bracculatum, Bates,
- 11 (10) Prothorax only a fourth wider than long, upper surface blue, legs mainly brown or piceous, microsculpture formed by very wide meshes. Length under 5 mm. p. 148.
betegara, Andr., p. 148.
- 12 (1) Elytral stria 2 disappearing before, though just visible close to, apex, apical stria slight, containing, but hardly extending beyond, the pore. Colour blue-black.
- 13 (14) Femora ferruginous, elytra with rather gently rounded sides, the punctures forming the striæ on apical fourth barely visible. p. 149.
xestum Andr., p. 149.
- 14 (13) Femora with the basal two-thirds piceous, elytra with distinctly rounded sides, the punctures forming the striæ on apical fourth fine but quite evident [p. 149.
menander, sp. nov.,

347. *Bembidion lysander*, sp. nov.

Colour black, upper surface blue, shiny; palpi, joints 1 and 2 of antennæ, with the base of 3 and 4, legs, and apical border of elytra ferruginous.

Head with fairly deep, rather smooth furrows, diverging behind; eyes moderately prominent; surface with one or two minute punctures at sides of vertex. *Prothorax* convex, cordate, about a third wider than head, nearly a half wider than long, base as wide as apex, its sides a little oblique, sides rounded in front, sinuate just before base, hind angles sharply rectangular, with a short carina; median line rather short, but moderately deep, basal foveæ fairly deep, the basal area depressed and finely, though not closely, punctate. *Elytra* convex, suboval, three-fifths wider than prothorax, a half longer than wide, shoulders rather square, border reaching base of stria 5; punctate-striate, but only the inner striæ impressed, the outer ones formed by the punctures, which are nearly as large as those of the inner striæ at base, but tend to disappear after middle, 1 moderately deep to apex, the other inner striæ much shallower, though reaching, or nearly reaching, apex, 8 deep behind, joining the marginal channel behind shoulder, apical stria and scutellary striole both present; sutural interval somewhat raised, the others only slightly convex, 3 with the two pores adjoining stria 3. No visible microsculpture. Sternum: metasternal process bordered.

Length, 4.5 mm.

Distribution. PUNJAB: Murree Hills, Thobba (*Howland Roberts*).

Type in the British Museum. This specimen, which is unique, is slightly damaged, but all necessary characters are clearly visible.

348. *Bembidion psilax*, sp. nov.

Colour piceous, upper surface dark æneous, with a greenish tinge; joints 1 and 2 of antennæ, with the basal half of 3 and 4, apex of femora, tibiæ, and tarsi ferruginous.

Head with fairly deep parallel furrows; eyes rather flat; antennæ reaching basal third of elytra; surface with one or two minute punctures on each side behind. *Prothorax* convex, cordate, a fifth wider than head, a third wider than long, base truncate, as wide as apex, sides gently rounded in front, sharply sinuate at a fifth from base, the hind angles sharply rectangular, with a well-marked carina; median line rather fine, basal foveæ fairly deep, the basal area somewhat depressed, both it and the front margin with some fine sparse puncturation. *Elytra* convex, oval, the shoulders rounded away, the

sides rather strongly rounded, a little more than a half wider than prothorax, a third longer than wide, border reaching base of stria 5; punctate-striate, the punctures small and not very clearly impressed, the striae moderately deep on disk, evanescent at sides and apex, 1 deep throughout, 2 visible throughout, very shallow before, but deeper again at apex, 7 very faint, scutellary striae and apical stria both short but moderately deep; intervals fairly convex on disk, dorsal pores very clear, adjoining stria 3. Microsculpture obsolete. Metasternal process finely bordered.

Length, 3.5 mm.

Distribution. UNITED PROVINCES: Chakrata, Konain, 7850 feet, and Mundali, 8400 feet (*J. C. M. Gardner*).

Type in the British Museum.

349. *Bembidion surdum*, sp. nov.

Colour black beneath, upper surface blue; joints 1 to 3 of the antennae, with base of joint 4, and legs flavous, penultimate joint of palpi a little infusate.

Head with moderately deep parallel furrows, which are finely and sparsely punctate, the punctures extending a little beyond them behind; eyes moderately prominent; antennae barely reaching basal fourth of elytra. *Prothorax* convex, cordate, a third wider than head, two-fifths wider than long, base slightly arcuate, barely wider than apex, sides moderately rounded in front, gently sinuate before base, the hind angles sharp though a little obtuse, each with a fine slight carina; median line deep and wide, not nearly reaching extremities, basal foveae small but fairly deep, a little removed on each side from the angles, basal area a little depressed, finely and not very closely punctate, surface otherwise impunctate. *Elytra* moderately convex, ovate, but with the shoulders, though rounded, quite distinct, a little more than a half wider than prothorax and as much longer than wide, border reaching stria 5; fully punctate-striate, 1 deep throughout, 2 very shallow before, but deeper close to apex, the dorsal striae moderately deep, the outer striae rather shallower at sides, and all (except 1) a good deal shallower behind, though visible throughout, scutellary striae slight, apical stria well developed; intervals fairly convex on disk, dorsal pores well marked, adjoining stria 3. Microsculpture of the elytra formed by a reticulation of very wide meshes; obsolete on the head and disk of prothorax. Metasternal process bordered.

Length, 4.25 mm.

Distribution. KASHMIR: Batote (*C. F. C. Beeson*). UNITED PROVINCES: Chakrata, Konain, 7850 feet (*J. C. M. Gardner*).

Type in the British Museum.

350. *Bembidion phædrum*, Andr.

Bembidium phædrum Andrewes, Ent. Month. Mag. 1923, p. 97.

Bembidion purkyněi Jedlička *, Acta Soc. ent. Čech. xxix, 1932, p. 38.

Bembidion phædrum Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 4 and 11.

Colour black, shiny; upper surface dark blue, sometimes with greenish reflections, joint 1 of antennæ, with base of joints 2 and 3, apical border of elytra, apex of femora, tibiæ, and tarsi dark red.

Head with deep parallel furrows, extending to clypeus; eyes moderately prominent; antennæ slender, reaching a little beyond basal third of elytra; a few scattered punctures on front and vertex. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base truncate, evidently wider than apex, sides rounded in front and sinuate a little before base, hind angles right and sharp, with a well marked carina; median line fine and short, transverse impressions slight, basal foveæ fairly deep, base rather closely punctate, a few punctures near front margin. *Elytra* convex, ovate, two-thirds wider than prothorax, not quite a half longer than wide, shoulders square, apex a little pointed, border extending inwards to stria 5; striæ moderately impressed and finely punctate, 1 deep throughout, 3 to 7 evanescent behind, 2 shallower but distinct to apex, scutellary stria rather long, apical stria short but fairly deep; intervals a little convex, at least on disk, dorsal pores adjoining stria 3. Microsculpture on the elytra formed by extremely fine transverse lines, a little less closely placed and more easily seen on the prothorax; on the head some isodiametric meshes are visible at sides only.

Length, 5-5.5 mm.

Distribution. UNITED PROVINCES: Central and West Almora, West Bhatkot, 4000 feet, Swal River Basin, and Ranikhet; Garhwal, Siuni Gad, 4000 feet (all *H. G. Champion*). PUNJAB: Simla Hills, Asni (*B. N. Chopra*). CHINA: Szechuen.

Type in the British Museum.

351. *Bembidion bracculatum*, Bates.

Bembidium bracculatum Bates *, Proc. Zool. Soc. Lond. 1889, p. 212; Andrewes, Ent. Month. Mag. 1924, p. 194; id., Ent. Month. Mag. 1926, p. 67.

Bembidion bracculatum Andrewes, Mem. Conn. Acad. x, 1934, p. 24 (?); Netolitzky, in Visser, Karakorum, i, 1935, p. 274.

Colour black, upper surface dark, faintly bluish-green; joints 1 to 3 of antennæ, apex of femora, tibiæ, tarsi, and apical border of elytra pale ferruginous; rest of antennæ and femora,

and penultimate joint of palpi fuscous ; shoulders of elytra hardly perceptibly tinged with red.

Head with moderately deep, uneven, parallel furrows ; eyes not prominent ; antennæ slender, reaching basal third of elytra ; surface impunctate. *Prothorax* moderately convex, cordate, rather more than a fourth wider than head, two-fifths wider than long, base barely wider than apex, its sides

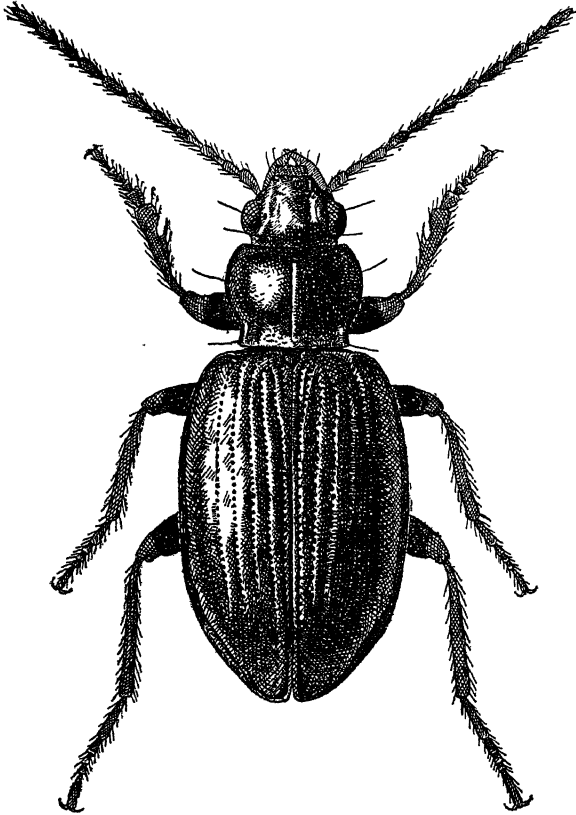


Fig. 24.—*Bembidion bracculatum* Bates.

a little oblique, sides rounded, sinuate close to base, hind angles sharp, a little obtuse, with a distinct though narrow carina ; median line fine, transverse basal sulcus deep, basal foveæ short, narrow, deep, converging forwards, basal area rugose and very vaguely punctate. *Elytra* rather flat, ovate, about three-fifths wider than prothorax and as much longer than wide, border rounding shoulder and reaching slightly beyond

stria 5 ; punctate-striate, the striae not much impressed, the punctures very clear on basal half, 1 deep and 2 lightly impressed to apex, 3 to 6 behind and 7 throughout very faint, 1, 2, and scutellary striae, which meet, and 5 all a little deeper close to base, apical stria fairly deep ; intervals practically flat, dorsal pores very distinct, adjoining stria 3. Microsculpture of the elytra formed by meshes about twice as wide as long, obsolete on the vertex and disk of prothorax.

Length, 5.5 mm.

Distribution. KASHMIR : Skardu (*J. H. Leech*), according to the label, but Bates gives "Goora Valley" ; Matayan (near Dras), 10,000 feet (*G. E. Hutchinson* and *J. A. Sillem*). UNITED PROVINCES : Gori River Gorge, 5000-9000 feet, Milam in the Gori Valley, 11,500 feet, and Laptel, 15,000 feet, all in Kumaon (*H. G. Champion*).

Type in Mr. René Oberthür's collection.

352. *Bembidion betegara*, *Andr.*

Bembidium betegara Andrewes, in *Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya*, 1914, par Guy Babault, *Carab.* 1924, p. 82.

Colour black, upper surface blue or greenish-blue ; palpi (except the penultimate joint of the maxillaries), joints 1 and 2 of the antennæ, the suture behind, and apex of the elytra ferruginous ; trochanters, knees, tibiae, and tarsi brownish.

Head with fairly deep parallel furrows ; eyes not prominent ; antennæ reaching basal third of elytra ; surface impunctate. *Prothorax* cordate, moderately convex, a fourth wider than head and as much wider than long, base as wide as apex, its sides a little oblique, sides rounded, sinuate a little before base, hind angles right and sharp, with a small but distinct carina ; median line and front transverse impression moderately developed, the latter bearing some punctures, basal foveæ small but deep, disk smooth, basal area rather coarsely and not very closely punctate. *Elytra* ovate, moderately convex, three-fifths wider than prothorax and as much longer than wide, border rounding shoulder and reaching stria 4 ; striae moderately impressed and finely punctate, 1, 2, and the scutellary striae meeting at base, 1 fairly deep throughout, the outer striae hardly less deep than the inner ones in front, but 2 to 7 are all a little shallower behind, apical stria well developed, joining 7 ; intervals a little convex, the two dorsal pores adjoining stria 3. Microsculpture of the elytra distinct, formed by very wide meshes, obsolete on disk of prothorax and vertex, but visible and formed by isodiametric meshes on the sides and back of the head.

Length, 4.5-5 mm.

Distribution. PUNJAB: Spiti, Pulga; Kulu, Koty, and Mandi (all *G. Babault*). BASHAHR: Sangla, 8000 feet (*R. N. Parker*).

Type in my collection.

The example from Sangla has a small pale apical spot on each elytron.

353. *Bembidion xestum*, *Andr.*

Bembidium xestum Andrewes, Ent. Month. Mag. 1923, p. 97.

Colour black, shiny; upper surface blue-black, with here and there greenish reflections; joints 1 and 2 of antennæ, with base of 3 and 4, palpi, legs, and apical border of elytra ferruginous.

Head with deep furrows, diverging slightly behind; eyes rather flat; antennæ reaching basal fourth of elytra; surface smooth, with one or two minute punctures only. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base bisinuate, evidently wider than apex, sides rounded, sinuate a little before base, hind angles sharply right, with a clearly marked carina; median line entire but rather fine, transverse impressions moderately deep, basal foveæ wide and deep, basal area rather closely punctate. *Elytra* moderately convex, elongate-oval, nearly a half wider than prothorax, quite two-thirds longer than wide, border terminating in a minute tooth opposite stria 5; striæ moderately impressed, at least on disk, finely punctate, I deep throughout, the rest evanescent towards apex, scutellary stria and apical stria both rather slight, the latter hardly extending forward beyond the pore; intervals slightly convex on disk, I somewhat raised, dorsal pores adjoining stria 3. Microsculpture of the elytra consisting of moderately fine transverse lines, forming wide meshes; obsolete on the head and disk of prothorax.

Length, 5 mm.

Distribution. PUNJAB: Kulu, Kasol, 6000 feet (*R. N. Parker*). UNITED PROVINCES: Naini-Tal (*H. G. Champion*).

Type in the British Museum.

The Kulu examples are a little wider than those from Naini-Tal and differ in some other particulars, but the material available for examination is so little that it seems best for the present to treat them as a variety.

354. *Bembidion menander*, sp. nov.

In size, colour, and general appearance closely resembling *B. xestum*, but differing in a few of its characters. Colour similar, but the basal two-thirds of the femora infusate.

Head similar; prothorax proportionately larger, with a wider marginal channel, the basal foveæ larger and deeper. Elytra ovate, narrowed in front and dilated behind, widest well behind middle, the sides rather strongly rounded, whereas in *xestum* they are only gently rounded; stria 2 practically disappears before apex, though it can sometimes be traced by a line of faint punctures, the striæ more deeply engraved, especially on disk, though not quite so deep as in *holconotum*. Microsculpture similar; metasternal process bordered.

Length, 5 mm.

Distribution. UNITED PROVINCES: Mussooree, Happy Valley; Chakrata, Konain, 7850 feet (*J. C. M. Gardner*).

Type in my collection.

Key to the kempi-group.

- 1 (4) Prothorax strongly contracted behind, so that the base is no wider than the apex; microsculpture reticulate or wanting.
- 2 (3) Elytra with the apical stria obsolete; microsculpture reticulate, but very faint; upper surface æneous, legs flavous *kempi*, Andr., p. 150.
- 3 (2) Elytra with the apical stria present, but rudimentary; microsculpture wanting; upper surface black, with very faint greenish reflections, femora mainly piceous [p. 152.
manicatum, sp. nov.,
- 4 (1) Prothorax not much contracted behind, so that the base is evidently wider than the apex; microsculpture formed by very fine transverse lines.
- 5 (6) Elytral striæ clearly impressed, the hind dorsal pore on the interval, though adjacent to stria 3; upper surface black with faint metallic reflections. Length 5-5.5 mm. *polites*, sp. nov., p. 153.
- 6 (5) Elytral striæ formed mainly by the punctures, the hind dorsal pore adjoining stria 3; upper surface rather bright metallic green. Length 4-4.5 mm. .. [p. 153.
chakrata, sp. nov.,

355. *Bembidion kempi*, Andr.

Bembidium kempi Andrewes, Ent. Month. Mag. 1922, p. 178.

Colour black, shiny; upper surface dark æneous, joint 1 of antennæ, with base of joints 2 to 4, palpi (except penultimate joint), and extreme apex of elytra more or less ferruginous, legs flavous.

Head with short, wide, parallel, but comparatively deep furrows; eyes moderately convex; antennæ barely reaching basal third of elytra; surface practically impunctate. *Prothorax* convex, cordate, about a fourth wider than head and

a third wider than long, base truncate, as wide as apex, sides rounded, sinuate rather before base, hind angles right and very sharp, with a clearly marked carina; median line not very deep, generally foveiform behind, but not as a rule reaching base, front transverse impression distinct, base depressed, foveæ rounded and fairly deep, surface smooth, basal area coarsely punctate, a few punctures near front margin. *Elytra* moderately convex, ovate, not quite two-thirds wider than prothorax, a half longer than wide, shoulders

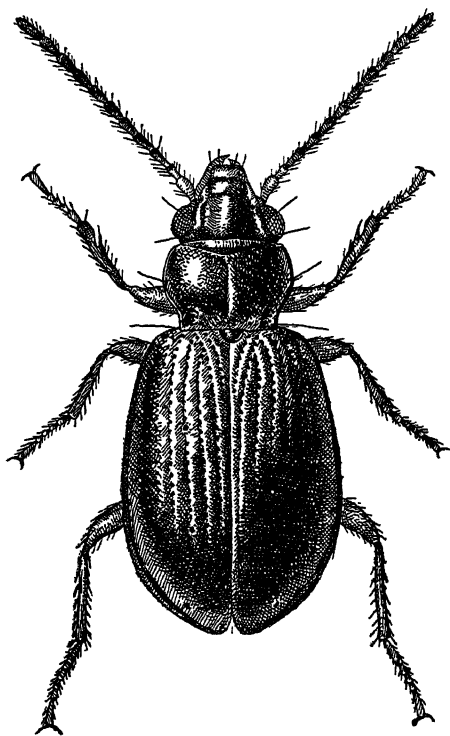


Fig. 25.—*Bembidion kempii* Andrewes.

evident, border extending to stria 5; punctate-striate, outer striae well marked on basal half, stria 1 deep to apex, the others obsolete behind, though 2 is visible close to apex, where it joins 1, a slight ridge at this point between it and the site of the apical stria, the apical pore isolated, scutellary striole rather short, strongly impressed at base, where it joins 1 and 2; intervals slightly convex on disk, dorsal pores small

but distinct. Microsculpture of the elytra poorly defined, formed by wide, vague meshes; none on head or prothorax.

Length, 3.5–4 mm.

Distribution. PUNJAB: Simla Hills, Matiana (*S. W. Kemp*); Theog, Kotgarh, and Fagu (*S. N. Chatterjee*); Simla (*B. N. Chopra*). BASHAHR: Daran (*R. N. Parker*). UNITED PROVINCES: West Almora and Upper Gumti Valley (*H. G. Champion*); Dehra Dun, Nim Nadi (*M. Cameron*); Mussooree, Mossy Falls, and Woodstock Falls (*M. Cameron*), Company Khud (*B. N. Chopra*); Chakrata division, Dodora Khud, Sainj Khud, Binal Gad, and Manjgaon (all *M. Cameron*), Khedar Khud (*S. N. Chatterjee*), Bear Garden, Mohna (*M. Cameron*). In the United Provinces the specimens were nearly all taken between 5000 and 8000 feet; in the Punjab between 7000 and 8000 feet.

Type in the British Museum.

356. *Bembidion manicatum*, sp. nov.

Colour black, shiny; head and prothorax with faint greenish reflections: joints 1 and 2 of antennæ, with basal half of joint 3, apex of femora, basal half of tibiæ, and apical border of elytra more or less ferruginous, tarsi piceous.

Head with moderately deep parallel furrows; eyes rather flat; antennæ reaching basal third of elytra; one or two fine punctures at sides of vertex. *Prothorax* convex, cordate, a fourth wider than head, a fifth wider than long, equally contracted at extremities, sides rounded in front and gently sinuate close to base, hind angles sharply rectangular, with a rudimentary carina; median line fine, both transverse impressions rather shallow, basal foveæ fairly deep, basal area finely but not closely punctate. *Elytra* convex, ovate, a little more than two-thirds wider than prothorax, rather less than a half longer than wide, rather strongly narrowed in front, though the shoulders are square, border reaching stria 5; punctate-striate, the striæ very lightly impressed, the punctures conspicuous, at least on basal half, 1 deep to apex, the rest evanescent from about middle and barely visible near apex, the outer striæ formed by the punctures, 8 deep behind, joining the marginal channel behind shoulder, scutellary striole short, apical stria present but rudimentary, so that the pore stands out distinctly; intervals nearly flat, dorsal pores very small, adjoining stria 3. No visible microsculpture. *Sternum*: metasternal process bordered.

Length, 4.5 mm.

Distribution. KASHMIR: Lidar Valley, Lidarwat, 9000 feet, 12. vi. 1928 (*B. M. Bhatia*).

Type in the British Museum. I have seen no other specimen.

357: *Bembidion polites*, sp. nov.

Colour black, upper side with faint metallic green or blue reflections; palpi, joints 1 to 3 of antennæ, and legs pale ferruginous.

Head with fairly deep, very uneven, parallel furrows; eyes moderately prominent; antennæ reaching basal fourth of elytra; a few punctures on the vertex and in and round the furrows. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base much wider than apex, sides rounded in front and sinuate near base, the hind angles sharply rectangular, a carina present; median line rather fine, front transverse impression vague, a few punctures along it, the basal foveæ fairly deep, basal area depressed and fairly closely punctate. *Elytra* moderately convex, ovate, two-thirds wider than prothorax, not quite a half longer than wide, shoulders square, border rounding shoulder and reaching a point opposite stria 5; very clearly though not deeply punctate-striate, the outer striae formed mainly by the punctures, 1 and 8 fairly deep and reaching apex, the rest fading away behind, though traceable nearly to apex, 8 joining the marginal channel behind shoulder, scutellary stria well developed, apical stria only just visible, the pore standing out and practically isolated; sutural interval raised, the rest practically flat, two dorsal pores, the front one adjoining stria 3, the hind one slightly removed from it. The microsculpture of the elytra consists of very fine transverse lines forming very wide meshes; on the disk of prothorax it is barely visible. *Sternum*: metasternal process bordered.

Length, 5-5.5 mm.

Distribution. UNITED PROVINCES: Mussooree, Childers Lodge, 7500 feet. ASSAM: Naga Hills, 4000 feet, 16. iii. 1924 (*S. N. Chatterjee*).

Type in my collection; co-types in the Forest Research Institute, Dehra Dun.

In one of the three examples from the Naga Hills the apical stria is impressed, but in other respects it does not differ from the other specimens.

358. *Bembidion chakrata*, sp. nov.

Colour black, the elytra rather bright metallic green, head and prothorax a little darker; palpi, joints 1 to 3 of antennæ, and legs flavous, joints 4 to 11 of antennæ brown.

Head with fairly deep, uneven, parallel furrows, extending to clypeus; eyes moderately prominent; antennæ not reaching far beyond base of prothorax; surface sparsely punctate on the front and vertex, and also in the furrows. *Prothorax* convex, cordate, a fourth wider than head, rather more than

a third wider than long, base bisinuate, evidently wider than apex, sides rounded in front, sinuate at about a fifth from base, hind angles slightly obtuse but sharp, with a very distinct carina; median line fine, front transverse impression obsolete at middle, though with a few punctures, basal foveæ deep, rugose, the space between them very clearly, though not coarsely, punctate. *Elytra* moderately convex, ovate, two-thirds wider than prothorax less than a half longer than wide, shoulders square, border rounding shoulder and reaching a point between striæ 5 and 6; finely but very clearly punctate-striate, the striæ only lightly impressed in front, and all (except 1) disappearing a little before apex, 8 deep behind, joining the marginal channel behind shoulder, apical stria wanting and consequently the apical pore isolated, 1, 2, and scutellary striole meeting at base, where the surface is a little depressed; sutural interval raised, the rest flat, two dorsal pores adjoining stria 3. The microsculpture is formed by extremely fine transverse lines, visible only under the microscope. *Sternum*: metasternal process bordered, though somewhat indistinctly, both it and the prosternal process with a few punctures.

Length, 4-4.5 mm.

Distribution. UNITED PROVINCES: Chakrata (*H. G. Champion*). SIKKIM: Pashok, 2000 feet, 11. vi. 1916 (*T. C. Hartless*).

Type in the British Museum; co-type in the Indian Museum, Calcutta.

Key to the notatum-group.

- | | | |
|-------|---|--|
| 1 (2) | Elytra wholly flavous; elytral striæ moderately impressed in front, evanescent towards apex, the punctures rather fine and closely placed, surface of elytra with a microsculpture of very fine transverse lines. Length 5-6 mm. | [p. 154.
<i>xanthochiton</i> , Andr., |
| 2 (1) | Elytra flavous, with a large, common, more or less rhomboidal, black or crimson-black patch a little behind middle; elytral striæ deep in front and coarsely punctate, all visible throughout, no microsculpture present. Length 4-4.5 mm. | <i>notatum</i> , Andr., p. 155. |

359. *Bembidion xanthochiton*, Andr.

Bembidium xanthochiton Andrewes, Ent. Month. Mag. 1922, p. 176.

Bembidion xanthochiton Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 3 and 8.

Colour black, shiny; head and prothorax dark metallic green or blue; elytra, epipleura, joints 1 to 4 of antennæ, palpi, and legs flavous; venter mainly brown.

Head convex, wide, frontal furrows deep, diverging a little behind; eyes prominent; antennæ slender, reaching basal fourth of elytra. *Prothorax* convex, cordate, about a sixth wider than head, fully a third wider than long, base truncate, a little wider than apex, sides rounded, sinuate at basal fourth, hind angles right, sharp, with a well marked carina; median line fairly deep, front transverse impression fine but evident, hind one and basal foveæ deep, base coarsely punctate, the surface smooth and polished but with some very fine cross-striation. *Elytra* convex, ovate, but with the shoulders square, a half wider than prothorax, four-fifths longer than wide, border reaching stria 5; striæ moderately impressed and rather finely punctate, 1 deep to apex, the others obsolescent behind, though visible to near apex, the outer striæ shallower than the inner ones, scutellary striole distinct, apical stria very slightly developed; intervals somewhat convex on disk only, dorsal pores rather small. Microsculpture of the elytra formed by extremely fine, closely placed, transverse lines; none on the disk of prothorax, while on the head some isodiametric meshes are visible at sides only.

Length, 5–6 mm.

Distribution. PUNJAB: Simla Hills, Theog (*S. N. Chatterjee*). UNITED PROVINCES: West Almora, Upper Gumti Valley, Ranikhet, and Haldwani (*H. G. Champion*); Mussooree, Mossy Falls and Kemti Falls (*M. Cameron*); Dehra Dun, Nagal. SIKKIM: Rangit Valley (*H. Stevens*). BENGAL: Gopaldhara (*H. Stevens*).

Type in my collection.

Easily distinguished from its Indian congeners by the uniformly flavous elytra.

360. *Bembidion notatum*, Andr. [Plate III, fig. 9.]

Bembidium notatum Andrewes, Ent. Month. Mag. 1922, p. 175; id., Ent. Month. Mag. 1926, p. 67.

Bembidion notatum Jedlička, Acta Soc. ent. Čech. xxx, 1933, pp. 3 and 9.

Colour black, shiny; head and prothorax dark metallic green; elytra, joints 1 to 3 of antennæ, with base of joint 4, palpi, and legs flavous, the elytra with a more or less rhomboidal crimson-black patch in the middle; base of venter piceous.

Head moderately convex, rather short and wide, frontal furrows deep, uneven, diverging behind; eyes prominent; antennæ slender, reaching basal fourth of elytra. *Prothorax* convex, cordate, a sixth wider than head, a third wider than long, base truncate, slightly wider than apex, sides rounded in front, sinuate at basal fourth, hind angles right, sharp, with a well marked carina; median line, hind transverse

impression, and basal foveæ all strongly marked, base coarsely punctate, surface smooth, with some very faint cross-striation. *Elytra* moderately convex, with rather square shoulders and parallel sides, three-fifths wider than prothorax, a little more than a half longer than wide, border extending inwards to stria 5; striae fairly deep, with large clear punctures, 1 deep to apex, the rest deep on basal half, fainter, though visible towards apex, scutellary striae short but fairly deep, apical stria very faint; intervals convex on disk only, dorsal pores very distinct. No appreciable microsculpture. The common dark spot on the elytra is somewhat irregular in outline, extending outwards on each side to stria 5 or 6, produced at middle both in front and behind and truncate at least behind.

Length, 4-4.5 mm.

Distribution. UNITED PROVINCES: West Almora, Gori Valley, Upper Gumti Valley, and Naini-Tal (*H. G. Champion*); Binsar (*A. D. Imms*); Chakrata division, Dodora Khud, Sainj Khud, Chulli Khud, and Jodi Gad (*S. N. Chatterjee*). BIHAR: Pusa. BENGAL: Kurseong (*Newton*). SIKKIM: Ghum district (*M. Cameron*). ASSAM: Garo Hills, Somswari River (*S. W. Kemp* and *B. Chopra*).

Type in the British Museum.

The pale elytra, with a dark median patch, will at once distinguish this from all other Indian species.

Key to the pamirense-group.

- 1 (2) Antennæ and legs black or æneous, elytra dark æneous, very shiny, without microsculpture, a small pale spot at the apex of each elytron. [*dicum*, Net.,* p. 142.
Length about 4 mm. *gagates*, Andr., var. *sin-*
- 2 (1) Antennæ at base and legs more or less ferruginous.
- 3 (52) Elytra with microsculpture.
- 4 (51) Microsculpture of the elytra formed either by fine transverse lines or by meshes which are wider, generally much wider, than long.
- 5 (14) Head more or less finely punctate both on disk and at sides.
- 6 (9) Prothorax with a well-developed carina in the hind angles, the sides of the base horizontal.
- 7 (8) Base of prothorax wider than apex, elytra with both a humeral and an apical spot. Length 5-5.5 mm. *widum*, Andr., p. 159.
- 8 (7) Base of prothorax not wider than apex, elytra with an apical spot only. [p. 160.
Length 5.5-6 mm. *vaziristanum*, Andr.,

* Inserted here, though belonging to the *braminum*-group, on account of the pale apical spots on the elytra.

- 9 (6) Prothorax with the carina in the hind angles slight or wanting, the sides of the base somewhat oblique.
- 10 (13) Head with only a few small punctures between the furrows, base of prothorax not wider than apex; head and prothorax blue. Length about 4.75 mm.
- 11 (12) Base of prothorax at middle punctate but not striate, elytral striae very lightly impressed on apical third. Elytra each with two very large ferruginous spots, nearly meeting at middle *palaciosi*, Andr., [p. 161.]
- 12 (11) Base of prothorax at middle both punctate and finely but conspicuously striate, elytral striae quite distinct behind and sometimes clearly impressed up to apex. Elytra with the basal two-fifths dark red, the apical fourth ferruginous..... *hutchinsoni*, Andr., [p. 162.]
- 13 (10) Head finely though sparsely punctate at sides, on disk, and in the furrows, base of prothorax wider than apex; head and prothorax dark, with greenish reflections. Length 5.75 mm... *khyber*, sp. nov., p. 162.
- 14 (5) Head impunctate, or with one or two small punctures only at sides of vertex.
- 15 (46) Elytra bicolorous, though, when two spots are present on each elytron, the apical is often a little lighter than the humeral one.
- 16 (25) Elytra with an apical spot only on each elytron. Large species, 4.5-8 mm. in length.
- 17 (18) Elytra blue, with a red spot actually at the apex, the striae fairly deep on disk, shallower, but evident near apex *dardum*, Bates, p. 163.
- 18 (17) Elytra not blue, with a preapical spot on each, the striae rather fine or, at most, moderately impressed on disk, faint behind.
- 19 (20) Elytra piceous, with a vague metallic tint, the meshes of the microsculpture on the elytra not much wider than long on the disk, isodiametric near apex. Length 7 mm..... *languens*, sp. nov., [p. 164.]
- 20 (19) Elytra brown-red, bronze, or aeneous. Length not exceeding 6 mm.
- 21 (24) Elytra brown-red or bronze, legs ferruginous. Sides of prothorax strongly rounded in front and sharply sinuate before base. Length 5.25-6 mm.
- 22 (23) Elytra bronze, with a sericeous gloss, a flavous spot before apex, prothorax a fifth wider than long, discal striae of the elytra lightly impressed *ladas*, Andr., p. 165.

- 23 (22) Elytra brown-red, without sericeous gloss, prothorax a third wider than long, discal striæ of the elytra moderately deep. [p. 166.
pamiricola, Lutch.,
- 24 (21) Elytra æneous, femora piceous, sides of prothorax moderately rounded in front and gently sinuate behind. Length 4.5 mm. *ixion*, Andr., p. 166.
- 25 (16) Elytra each either with a humeral and apical spot, which sometimes join, or with a broad ferruginous margin.
- 26 (43) Elytra each with a humeral and apical spot, prothorax not unusually convex and less than a half wider than long.
- 27 (36) Prothorax with a well developed carina on each side in the hind angles.
- 28 (31) Both femora and elytra mainly dark.
- 29 (30) Base of prothorax vaguely rugose-punctate; head and prothorax green, front spot on the elytra covering the shoulder and extending vaguely inwards to about stria 3. [p. 167.
ladakense, Andr.,
- 30 (29) Base of prothorax finely and rather closely rugose-punctate; head and prothorax bluish green, front spot on the elytra long and narrow, on intervals 5-6 *hazara*, sp. nov., p. 168.
- 31 (28) Femora entirely ferruginous.
- 32 (33) Elytra very dark, the spots on them dark ferruginous, vaguely defined and sometimes obsolete *chitral*, sp. nov., p. 168.
- 33 (32) Elytra mainly light ferruginous.
- 34 (35) Head and prothorax green; base of prothorax barely wider than apex; elytral striæ lightly impressed, even on disk, intervals nearly flat [p. 169.
pamirensis, Bates,
- 35 (34) Head and prothorax blue; base of prothorax evidently wider than apex; elytral striæ fairly deep on disk, intervals moderately convex *gilgit*, sp. nov., p. 171.
- 36 (27) Prothorax with a slight or rudimentary carina on each side in the hind angles.
- 37 (40) Femora and elytra mainly dark; elytral striæ 6 and 7 rather faint, formed by the punctures.
- 38 (39) Surface slightly sericeous; elytral striæ fine, lightly impressed, even on disk. Length 4.25-5 mm. *luntaka*, Andr., p. 171.
- 39 (38) Surface shiny; elytral striæ moderately impressed on disk. Length 5-5.25 mm. *vorax*, sp. nov., p. 172.
- 40 (37) Femora entirely and elytra mainly ferruginous; elytral striæ 6 and 7 lightly impressed.
- 41 (42) Prothorax with the sides of the base horizontal, the hind angles sharply rectangular; elytral striæ moderately impressed and finely punctate. Length 5.5-6 mm. *rubidum*, Andr., p. 173.

- 42 (41) Prothorax with the sides of the base oblique, the hind angles slightly obtuse; elytral striæ deep and rather coarsely punctate. Length 4.75 mm. *clops*, sp. nov., p. 174.
- 43 (26) Elytra with a wide ferruginous margin; prothorax very convex.
- 44 (45) Prothorax a half wider than long, base uneven, but hardly punctate; elytral striæ very lightly impressed, even on disk [p. 174.
exornatum, Andr.,
- 45 (44) Prothorax a third wider than long, base finely punctate; elytral striæ on disk moderately impressed *sillemi*, Net., p. 175.
- 46 (15) Elytra tricolorous, legs and palpi pale.
- 47 (48) Microsculpture of the elytron formed by very fine transverse lines, visible only under the microscope; elytra with the basal half light or dark brown, the apical fourth dirty white, a piceous fascia separating the two parts *babaulti*, Andr., p. 176.
- 48 (47) Microsculpture of the elytra reticulate, the meshes very wide.
- 49 (50) Elytra mainly dark, the basal third vaguely dark red, each with an oblique apical flavous spot *parkeri*, sp. nov., p. 177.
- 50 (49) Elytra with the basal half brown, the apical third flavous, a piceous fascia, interrupted at suture, which is brown, separating the two parts ... [p. 178.
atalanta, sp. nov.,
- 51 (4) Microsculpture of the elytra formed by isodiametric meshes; elytra as a rule mainly pale, sometimes with two spots on each, sometimes the whole surface pale, with only a dark central spot. [p. 178.
fuscicrus, Motch.,
- 52 (3) Elytra without microsculpture, convex, and very shiny, generally with two red spots on each; prothorax with a carina on each side in the hind angles, the base rather closely punctate [p. 180.
psilodorum, Andr.,

361. *Bembidion uvidum*, Andr.

Bembidium uvidum Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 83; id., Ent. Month. Mag. 1924, p. 196.

Bembidium bracculatum Andrewes (not Bates), in Mission Babault (*vide supra*), p. 17 (part).

Colour black, shiny; upper surface dark metallic green, the elytra sometimes vaguely bluish; palpi (except the penultimate joint), joints 1 to 4 of the antennæ, and legs ferruginous, two spots of moderate dimensions on each elytron and apical border reddish.

Head convex, frontal furrows wide, parallel, uneven; eyes only moderately prominent; antennæ reaching basal third of elytra; surface with some puncturation at sides and in the furrows. *Prothorax* convex, cordate, about a third wider than head, and as much wider than long, sides rounded, sinuate a little before base, which is truncate, and a little wider than apex, hind angles sharply rectangular, with a well developed carina; median line shallow, basal foveæ deep, the base finely and closely punctate, the puncturation extending a little forward along the median line and foveæ, a few punctures along the front transverse impression. *Elytra* convex, ovate, but with square shoulders, three-fifths wider than prothorax, not quite a half longer than wide, border extending inwards to stria 5; moderately punctate-striate, the striæ shallower at sides and obsolete near apex, though 2 is visible throughout and deepens a little close to apex, 1 deep throughout, scutellary stria and apical stria both well developed; intervals slightly convex on disk, the dorsal pores small. Microsculpture of the elytra formed by very wide meshes, obsolete on disk of prothorax; on the head the meshes are isodiametric, but visible at margins only.

Length, 4.5–5 mm.

Distribution. PUNJAB: Kangra district (*G. Babault*). UNITED PROVINCES; Naini-Tal and Ranikhet (*H. G. Champion*).

Type in my collection.

362. *Bembidion waziristanum*, *Andr.*

Bembidion waziristanum Andrewes, Journ. Bomb. Nat. Hist. Soc. xxxv, 1932, p. 863.

Colour black, upper side rather faintly æneous, palpi ferruginous, first joint of antennæ, legs (except base of femora), and a vague apical spot on each elytron dull red.

Head with deep parallel furrows, neck wide; eyes rather flat; antennæ moderately thick, reaching basal third of elytra; surface vaguely rugose between the furrows, with a few fine scattered punctures behind. *Prothorax* convex, cordate, about a fourth wider than head and as much wider than long, extremities equally contracted, sides rather strongly rounded in front, sinuate a little before base, the marginal channel widening a little on basal half, hind angles sharp and rectangular, with a well developed carina; median line and transverse impressions all moderately deep, basal foveæ deep, surface smooth, basal area finely and irregularly punctate. *Elytra* moderately convex, oval, a half wider than prothorax, three-fifths longer than wide, border at base reaching stria 5; striæ moderately deep and very clearly

punctate, much shallower, though visible, at sides and apex, 1 deep throughout, 3 to 6 only disappearing just before apex, 2 shallow, but visible near apex, scutellary striole fairly long, apical stria moderately deep, joining 7; intervals somewhat convex on disk, otherwise flat, dorsal pores conspicuous. The microsculpture of the elytra consists of fine transverse lines forming very wide meshes, none on prothorax or head, except on labrum and neck, where there are isodiametric meshes.

Length, 5.5–6 mm.

Distribution. WAZIRISTAN: Razmak (*G. Palacios*).

Type in the British Museum.

363. *Bembidion palaciosi*, *Andr.*

Bembidion palaciosi Andrewes, Journ. Bomb. Nat. Hist. Soc. xxxv, 1932, p. 864.

Colour piceous; head and prothorax blue; palpi, antennæ, and legs flavous; elytra each with two large ferruginous spots, nearly meeting at middle.

Head with deep, wide, parallel furrows; eyes prominent; antennæ slender, barely reaching basal third of elytra; surface almost impunctate on disk, but with a few punctures at sides behind. *Prothorax* convex, cordate, only a little wider than head, a fourth wider than long, extremities equally contracted, sides strongly rounded in front, sinuate close to base, marginal channel very narrow, hind angles sharp and rectangular, with a slight carina; median line and transverse impressions all moderately marked, basal foveæ small but fairly deep, surface nearly smooth, basal area finely but clearly punctate. *Elytra* moderately convex, ovate, about two-thirds wider than prothorax, three-fifths longer than wide, widest behind middle, border at base reaching stria 5; striæ moderately deep and very clearly punctate, much shallower at sides and behind, 1 deep throughout, 2 quite distinct to apex, 7 almost invisible, scutellary striole fairly long, apical stria rather short, joining 5; intervals somewhat convex on disk, flat elsewhere, dorsal pores small, but quite distinct. Microsculpture of the elytra formed by very fine wide meshes; practically none visible on prothorax, but some isodiametric meshes can be seen on the neck.

Length, 4.75 mm.

Distribution. WAZIRISTAN: Razmak (*G. Palacios*).

Type in the British Museum.

364. *Bembidion hutchinsoni*, Andr.

Bembidion hutchinsoni Andrewes, Mem. Conn. Acad. x, 1934, pp. 24 and 26.

Colour piceous beneath, blue-black above; palpi, joints 1 to 4 of antennæ, and legs ferruginous; basal two-fifths of the elytra dark red, apical fourth pale ferruginous, so that there is a dark band across them, the outline of which is vague and somewhat variable.

Head with deep, uneven furrows, converging very slightly in front; eyes prominent; antennæ slender, reaching basal third of elytra; surface punctate at sides behind, and with a few scattered punctures on disk. *Prothorax* convex, cordate, about a sixth wider than head, a fifth wider than long, base slightly oblique at sides, hardly wider than apex, sides well rounded in front, sinuate a little before base, hind angles right, fairly sharp, and with a slight carina; median line and the small basal foveæ moderately deep, transverse impressions shallow, basal area a little depressed and finely punctate, with some fine but conspicuous striation. *Elytra* subquadrate, moderately convex, a half wider than prothorax, nearly two-thirds longer than wide, shoulders evident, border reaching stria 5; striæ clearly punctate, moderately impressed on disk, more lightly at sides and behind, though in some specimens (including type) clearly impressed to apex, scutellary striae and apical stria both present, but rather slight, intervals a little convex on disk, dorsal pores very distinct, on stria 3, at about a third and two-thirds. Microsculpture of the elytra consisting of very fine transverse lines, which form very wide meshes, none on disk of prothorax or head. Meta-sternal process bordered and with a transverse groove behind it.

Length, 4.6–5 mm.

Distribution. KASHMIR: Kiam, 15,630 feet (*G. E. Hutchinson*).

Type in my collection.

The specimens were taken round the edge of a hot spring.

365. *Bembidion khyber*, sp. nov.

Colour piceous; head and prothorax with greenish reflections; palpi, joints 1 to 4 of antennæ (rest brown), and legs flavous. The elytra are pale, with a piceous fascia just behind middle, expanding a little towards apex along the inner intervals, while the marginal channel from the base to the fascia and an area round the scutellum are also piceous; in front of the fascia the pale colour is ferruginous, behind it is yellow-white.

Head with moderately deep parallel furrows, just extending to clypeus; eyes fairly prominent; antennæ reaching basal

fifth of elytra ; surface with a number of punctures, at sides and middle of vertex, and between and in the furrows. *Prothorax* convex, cordate, very little wider than head, about a fifth wider than long, base a little wider than apex, sides strongly rounded in front, sinuate at a fifth from base, hind angles sharply rectangular, with only a rudimentary carina ; median line fine, front transverse impression very shallow, with a few fine punctures, hind one and basal foveæ fairly deep, basal area coarsely punctate. *Elytra* rather flat, ovate, a half wider than prothorax, nearly three-fifths longer than wide, shoulders square, border reaching stria 5 ; rather finely punctate-striate, 1 reaching apex, the remainder shallower behind, though 2 reaches apex, 7 rather rudimentary, 8 deep behind, joining marginal channel behind shoulder, apical stria and scutellary striae both well developed ; intervals nearly flat, 1 very narrow, and somewhat raised behind, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by fine and very wide meshes. *Sternum* : metasternal process bordered.

Length, 5.75 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE : Khyber Pass, Alimasjid, 25. iv. 1916 (*T. B. Fletcher*).

Type in the British Museum. This is the only example I have seen.

At first sight very much like *pamirense* Bates, but larger, the elytra somewhat differently coloured, the head bearing very evident punctures, the sides of the prothorax much more rounded.

366. *Bembidium dardum*, Bates.

Bembidium dardum Bates *, Proc. Zool. Soc. Lond. 1889, p. 212 ; Andrewes, Ent. Month. Mag. 1924, p. 194.

Bembidium terminale Heer [Faun. Col. Helv. 1841, p. 564] subsp. *bucharicum* Netolitzky, Kol. Rundsch. 20, 1934, p. 69 ; id., Att. Mus. Civ. Trieste, xii, 1934, p. 93.

Colour piceous, shiny : upper surface dark blue ; palpi, joints 1 and 2 of the antennæ, and legs ferruginous ; apical margin of elytra dull red over a space equal to the width of three intervals, the colour running forward along sides to about a third from apex.

Head convex, with, short, wide frontal furrows ; eyes only moderately prominent ; antennæ very slender, reaching basal fourth of elytra ; surface impunctate. *Prothorax* convex, cordate, not quite a third wider than head, about a fourth wider than long, base truncate, evidently wider than apex, sides well rounded, sinuate a little before base, hind angles sharply rectangular, with only a rudimentary carina ; median line fine, base slightly depressed, basal foveæ small and rather

shallow, basal area with some fine but rather faint puncturation. *Elytra* rather flat, elongate-ovate, about two-thirds wider than prothorax, three-fifths longer than wide, border extending inwards to stria 5; striæ moderately deep on disk and finely punctate, 1 deep throughout, 7 very faint, 2 to 7 evanescent behind, but 2 a little deeper again close to apex, scutellary striole fairly long, apical stria moderately developed; intervals lightly convex on disk, dorsal pores fairly conspicuous. Microsculpture of the elytra consisting of fine transverse lines, which form meshes about three times as wide as long; on the prothorax the meshes are only just visible; on the head some isodiametric meshes are visible behind.

Length, 6.5–7 mm.

Distribution. KASHMIR: "Skardo" (in the text), "Goorais Valley" (on the label). BOKHARA.

Type in Mr. René Oberthür's collection. The type and the specimen referred to by Dr. Netolitzky, which also came from Skardu (*L. Caporiacco*), are the only Indian examples seen, and in the latter the red colour at apex is practically confined to the border. Examples of *bucharicum* from Central Asia are generally piceous, with a greenish reflection, and a very vague reddish spot is sometimes visible at a little distance from apex. The type of *bucharicum* is in Dr. Netolitzky's collection.

367. *Bembidion languens*, sp. nov.

Colour piceous beneath; head and prothorax very dark greenish-blue, elytra piceous, with vague green reflections, each with a faint red spot behind on intervals 5 to 7; legs and antennæ ferruginous, joints 3 to 11 of the latter dark at apex.

Head with deep, wide, irregular furrows; eyes fairly prominent; antennæ long and very slender, reaching basal fourth of elytra; surface impunctate, except for a single puncture on vertex. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base a little wider than apex, sides rounded in front, sinuate at a fifth from base, the hind angles right, sharp, hardly projecting laterally, and with only a rudimentary carina; median line fine but distinct, basal area transversely depressed, finely rugose-punctate, surface with some faint cross-striation. *Elytra* moderately convex, ovate, about three-fourths wider than prothorax, and a half longer than wide, border rounding shoulder and reaching stria 5; striæ rather lightly impressed on disk but densely punctate, 1 deep, and 2 quite distinct to apex, the rest much finer behind and the outer ones rather faint throughout, 8 deep behind, joining marginal channel behind shoulder, scutellary striole and apical stria both

moderately developed ; intervals a little convex on disk only, the two dorsal pores on the inner side of stria 3. Microsculpture of the elytra formed by meshes a little wider than long on the disk, isodiametric towards apex and on the head, but on the head and disk of prothorax they are barely visible. *Sternum* : metasternal process bordered.

Length, 7 mm.

Distribution. BASHAHR STATE : Poo.

Type in my collection. This is the only example seen.

368. *Bembidion ladas*, Andr. [Plate IV, fig. 3.]

Bembidium ladas Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 79, t. 1, f. 5.

Colour black ; head and prothorax dark metallic green, elytra piceous bronze ; palpi, joints 1 and 2 of antennæ, with base of 3 and 4, legs, an apical spot on each elytron, and the apical border ferruginous, femora rarely somewhat infuscate.

Head small, convex, frontal foveæ deep, parallel, and uneven ; eyes rather flat ; antennæ reaching basal third of elytra ; surface impunctate. *Prothorax* very convex, cordate, nearly a half wider than head, about a fifth wider than long, base bisinuate, slightly narrower than apex, sides strongly rounded, sinuate quite close to base, the hind angles sharp, though slightly obtuse, with a distinct carina ; median line fine, front transverse impression rather deep, base depressed, the foveæ deep, basal area finely rugose-punctate. *Elytra* convex, elongate-ovate, but with distinct shoulders, a half wider than prothorax, rather more than a half longer than wide, border extending inwards to stria 5 ; striæ lightly impressed and finely punctate, 1 deeper behind and continued to apex, the rest evanescent at sides and apex, but 2 deepening a little close to apex, scutellary stria and apical stria both moderately developed ; intervals nearly flat, even on disk, dorsal pores small but distinct ; surface with a slight silky gloss, the apical spots rather small, on intervals 5 to 7, curving inwards behind and sometimes nearly meeting in front of apex. Microsculpture of the elytra consisting of very fine transverse lines, forming meshes three times as wide as long ; none on head or prothorax.

Length, 5.25–6 mm.

Distribution. KASHMIR : Nima-Mud, Tsho-Morari, and Salt Lake, all in Rupshu (*G. Babault*) ; Leh and Mulbeck, in Ladakh (*G. Babault*) ; Rongo (*F. Stoliczka*).

Type in my collection.

An example found at Poo, in Bashahr, perhaps belongs to this species, but differs in some particulars from the typical form.

369. *Bembidion pamiricola*, *Lutch.*

Bembidion pamiricola Lutchnik, Abh. Pamir Exped. 1928, ii, 1930, p. 34, t. 1, f. 2; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 95.

Very closely allied to *B. ladas* in size, colour, and shape. The frontal furrows are shorter and only reach mid-eye instead of hind-eye level. The prothorax is relatively wider, being a third instead of a fifth wider than long, and the base is rather less closely punctate. On the elytra the discal striae are much deeper and (in the example examined) the silky gloss, noticeable in *ladas*, is absent.

Length, 5.5–6 mm.

Distribution. KASHMIR: Biaho Valley, Bardumal, 11,000 feet (*L. Caporiacco*). PAMIRS.

Type in the Museum of the Petrograd Academy of Sciences.

The only specimen seen is that from Bardumal, which appears to be somewhat immature, but Dr. Netolitzky, who determined the species, had also examined one of the original examples from the Pamirs.

370. *Bembidion ixion*, *Andr.*

Bembidion ixion Andrewes, Mem. Conn. Acad. x, 1934, pp. 24 and 26.

Colour piceous beneath; head and prothorax æneous, elytra dark reddish brown, with a very faint metallic tinge, and a vague dark red apical spot on each; joints 1 to 3 of antennæ, tibiae, and tarsi more or less ferruginous.

Head with fairly deep parallel furrows; eyes moderately prominent; antennæ reaching basal third of elytra; surface impunctate. *Prothorax* convex, subcordate, not quite a third wider than head, two-fifths wider than long, base slightly arcuate, as wide as apex, sides rounded in front, slightly sinuate behind, hind angles sharp but a little obtuse, each with a short but fairly sharp carina, bounding the small, deep, rounded foveæ on the outer side; median line and front transverse impression moderately deep, basal area depressed, finely but not closely rugose-punctate. *Elytra* convex, ovate, not quite a half wider than prothorax and not quite three-quarters longer than wide, border extending inwards a little beyond stria 5, shoulders visible, but not prominent; punctate-striate, the inner striae moderately impressed on disk, much less so at sides, 7 represented by a row of minute punctures, all (except 1) evanescent towards apex, but 2 is impressed quite close to apex, scutellary striole and apical stria only moderately developed, intervals a little convex on disk only, dorsal pores fairly distinct, adjoining stria 3, just before middle

and at three-fourths. Microsculpture of the elytra consisting of fine transverse lines, which form meshes quite three or four times wider than long; none on disk of prothorax or head. Metasternal process bordered.

Length, 4.5 mm.

Distribution. KASHMIR: Matyan, 10,000 feet (*G. E. Hutchinson*).

Type in my collection. This is a unique ♂ specimen.

371. *Bembidion ladakense*, *Andr.*

Bembidium tibiale Bates (not Duft.), in Scientific Results of the Second Yarkand Mission, 1891, Col. p. 19.

Bembidium bracculatum Andrewes (not Bates), in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 17 (part), and note 1.

Bembidium ladokense Andrewes, Ent. Month. Mag. 1924, p. 195.

Bembidion ladakense Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 94.

Colour piceous; upper surface metallic green, the elytra with only faint greenish reflections; palpi (except penultimate joint), joints 1 to 3 of antennæ, with basal half of 4, apex of femora, tibiæ, tarsi, and two spots on each elytron ferruginous.

Head with fairly deep, uneven, parallel furrows; eyes only moderately prominent; antennæ stout, reaching basal third of elytra; surface practically impunctate. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base bisinuate, a little wider than apex, sides rounded, sinuate a little before base, hind angles sharply rectangular, with a short carina; median line moderately deep, base depressed, the foveæ small but deep, basal area vaguely punctate. *Elytra* moderately convex, ovate, but with square shoulders, quite a half wider than prothorax, three-fifths longer than wide, border extending inwards to stria 5; striæ moderately impressed and finely punctate, shallower, but quite clear both at sides and apex, scutellary striole very fine, 2 fairly deep near apex, apical stria moderately developed; intervals nearly flat, dorsal pores quite distinct. The shoulder spot is large and disappears vaguely towards the middle; the apical spot is smaller and oblique, bending inwards behind. Microsculpture of elytra very clear, formed by meshes from two to three times wider than long; that of prothorax obsolete on disk; on the head the meshes are isodiametric, but visible at sides only.

Length, 5.5-6 mm.

Distribution. KASHMIR: Mulbeck in Ladakh, Gund, and Baltal (*G. Babault*); Khalatse; Biaho Valley, Bardumal,

11,000 feet (*L. Caporiacco*). PUNJAB: Sumdeo in Lahul (*G. Babault*).

Type in my collection; the specimen determined by Bates as *tibiale* is in the Indian Museum, Calcutta.

In the example from Gund the apical spot is missing.

372. *Bembidion hazara*, sp. nov.

Colour black; head and prothorax with vague bluish-green reflections; joints 1 and 2 of antennæ, with base of joints 3 and 4, tibiæ, tarsi, apical third of femora, two spots on each elytron, together with the apical border, ferruginous; rest of antennæ and penultimate joint of palpi fuscous. The elytral spots are on intervals 5 and 6, the humeral one long and narrow, the apical one rather small.

Head with fairly deep parallel furrows; eyes moderately prominent; antennæ reaching basal third of elytra; a few minute punctures at sides of vertex. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base only a shade wider than apex, sides rounded in front and sinuate near base, the hind angles sharply rectangular, with a short carina; median line very fine, front transverse impression obsolete, though one or two fine punctures are visible on its site, hind impression and basal foveæ moderately deep, basal area finely rugose-punctate, some longitudinal striation along the hind margin. *Elytra* flat, ovate, three-fifths wider than prothorax, two-thirds longer than wide, shoulders square, border reaching stria 5; rather lightly punctate-striate, 1 deep to apex, the outer striae formed by very fine punctures, striae 2 to 7 all very faint behind, though visible to apex, 2 a little deeper just before apex, 8 deep behind, joining marginal channel behind shoulder, both scutellary striae and apical stria well developed, the latter joining stria 7; intervals flat, dorsal pores very large, as wide as an interval, adjoining stria 3. Microsculpture formed by moderately wide meshes, none on disk of prothorax. *Sternum*: metasternal process finely bordered.

Length, 5.5 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE: Hazara, Upper Kagan Valley, Narang, 8000 feet (*H. G. Champion*).

Type in the British Museum. I have seen only the type-specimen.

373. *Bembidion chitral*, sp. nov.

Colour black, moderately shiny; head and prothorax dark green; palpi, joints 1 and 2 of antennæ, with base of joints 3 and 4, legs, and two spots on each elytron ferruginous. The spots are variable in size, vaguely defined, and sometimes

obsolete ; the front one is generally elongate and covers the shoulder, the hind one sometimes extending to the apex.

Head convex, frontal furrows parallel, uneven ; eyes fairly prominent ; antennæ nearly reaching middle of elytra ; front often vaguely transversely striate, a few punctures on each side behind. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base truncate, evidently wider than apex, sides rounded in front, sinuate near base, hind angles sharply rectangular, often projecting a little laterally, with a well developed carina ; median line and front transverse impression shallow, hind transverse impression a little deeper, basal foveæ wide and deep, base finely punctate, the punctures generally extending a little forwards along median line, marginal channels, and in front of the carinæ, some vague puncturation also visible near front margin. *Elytra* convex, ovate, but with square shoulders, three-fifths wider than prothorax, not quite a half longer than wide, border bent slightly backwards at extremity, without quite reaching stria 5 ; moderately punctate-striate, shallower at sides and apex, but visible everywhere, 1 fairly deep throughout, scutellary striole and apical stria both lightly impressed ; intervals somewhat convex on disk only, dorsal pores small, adjoining stria 3. Microsculpture of the elytra formed by very wide meshes ; none on disk of prothorax, but vague isodiametric meshes are visible on the head, especially on the neck. Metasternal process bordered.

Length, 4.5-5.25 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE : Chitral, Madaglasbt and Izh, Lutkoh Valley (*B. N. Chopra*).

Type in the Indian Museum, Calcutta ; co-types in my collection.

374. *Bembidion pamirense*, Bates.

Bembidium pamirense Bates *, Proc. Zool. Soc. 1878, p. 718 ; id., Scientific Results of the Second Yarkand Mission, 1891, Col., p. 18.

Bembidion pamirense Müller, Kol. Rundsch. 1918, p. 90.

Colour piceous ; head and prothorax metallic green, palpi, antennæ, legs, and elytra more or less ferruginous ; a brown vitta on the elytra, covering intervals 1 and 2 on each side at base, expanding into a piceous spot of moderate size at middle, but not nearly reaching apex, the spot dilated at sides and sometimes reaching margin, and extending along interval 9 and the marginal channel.

Head convex, with uneven, parallel furrows ; eyes rather flat ; surface with one or two minute punctures. *Prothorax* convex, cordate, quite a fourth wider than head, a third wider

than long, equally contracted at extremities, sides rounded, sinuate close to base, hind angles sharply rectangular, with a distinct carina; median line moderately impressed, basal foveæ deep, basal area depressed, moderately punctate, and longitudinally rugose, surface generally vaguely and rather irregularly striate. *Elytra* rather flat, ovate, but with evident shoulders, a half wider than prothorax, nearly two-thirds longer than wide, border reaching stria 5; striæ rather lightly impressed and very finely punctate, 1 fairly deep

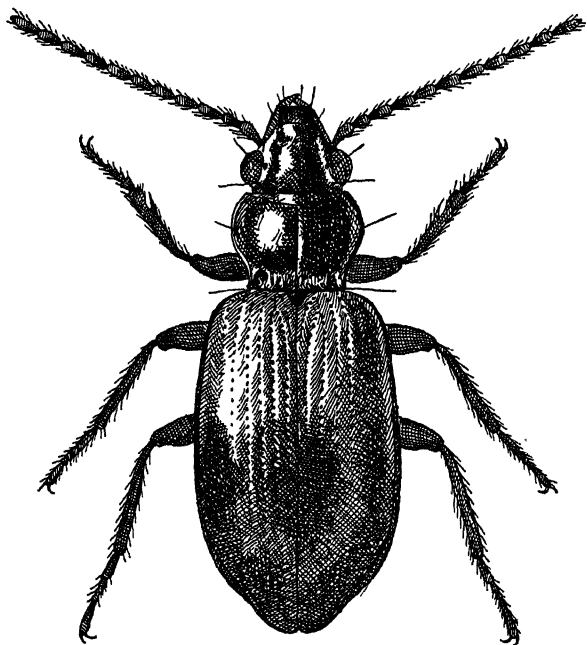


Fig. 26.—*Bembidion pamirense* Bates.

throughout, the rest shallower on disk and not obliterated either at sides or behind, scutellary striae and apical stria only moderately developed; intervals nearly flat, dorsal pores small but distinct. Microsculpture on the elytra very irregular, but formed by meshes from two to three times wider than long; obsolete on disk of prothorax and on head, but isodiametric meshes are visible on the neck.

Length, 4.75 mm.

Distribution. PAMIRS, between Sirikol and Panga (*F. Stoliczka*).

Type in the Indian Museum, Calcutta.

In my Catalogue I gave Gilgit as another locality, but the specimens from this place turn out to belong to another species, which is described below.

375. *Bembidion gilgit*, sp. nov.

Colour piceous, surface shiny; head and prothorax dark blue; palpi, joints 1 to 3 of antennæ (rest brown), and legs ferruginous, elytra each with two large, dull red spots, which cover the greater part of the area, and sometimes meet.

Head with moderately deep furrows, diverging a little behind and not extending on to clypeus; eyes moderately prominent; antennæ reaching basal fourth of elytra; vertex with a few small punctures at sides. *Prothorax* convex, cordate, relatively rather large and wide, rather more than a fourth wider than head, a fifth wider than long, base evidently wider than apex, sides rounded in front, sinuate at a fifth from base, the hind angles sharply rectangular, with a carina present; median line fine, front transverse impression slight, but with a few fine punctures, basal foveæ fairly deep, the whole of the basal area punctate. *Elytra* rather flat, ovate, rather more than a half wider than prothorax, and as much longer than wide, shoulders square, border reaching stria 5; punctate-striate, the striæ fairly deep on disk, shallower at sides and behind, but all visible to apex, 1 deep to apex, and 2 only a little shallower behind, 8 deep behind, joining marginal channel behind shoulder, apical stria present, the scutellary striole rather long; intervals convex on disk, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by fine and very wide meshes; none on disk of prothorax. *Sternum*: metasternal process bordered.

Length, 4.5–5 mm.

Distribution. KASHMIR: Gilgit, 5000 feet, xii. 1886 (*G. M. Giles*).

Type in the Indian Museum, Calcutta; co-types in my collection.

376. *Bembidion luntaka*, *Andr.*

Bembidium luntaka Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 75.

Bembidion luntaka Jedlička, Acta Soc. ent. Cech. xxx, 1933, pp. 5 and 15.

Bembidion luntaka Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 94; Andrewes, Mem. Conn. Acad. x, 1934, p. 24; Netolitzky in Visser, Karakorum, i, 1935, p. 273.

Colour black, upper surface dark metallic green, elytra often piceous, slightly sericeous; palpi (except penultimate joint), joints 1 and 2 of the antennæ, with basal half of 3 and 4,

tibiæ, tarsi, and apical half of femora flavous; elytra each with two fairly large but vaguely defined ferruginous spots, the humeral one reaching base, the two apical spots sometimes meeting behind and forming a crescent.

Head with fairly deep parallel furrows; eyes rather flat; antennæ reaching basal fourth of elytra; one or two fine punctures at sides of vertex. *Prothorax* convex, cordate, about a fourth wider than head and a third wider than long, equally contracted at extremities, sides of base oblique close to the angles, sides well rounded in front and sinuate near base, hind angles sharp, but a little obtuse, with a small carina; median line fine, front transverse impression faint, hind one and basal foveæ moderately deep, basal area finely rugose-punctate. *Elytra* moderately convex, ovate, nearly two-thirds wider than prothorax, and as much longer than wide, shoulders square, border reaching stria 5; rather finely punctate-striate, 1 deep to apex, the rest evanescent at sides and apex, though visible practically throughout, apical stria and a short scutellary striole both present; intervals slightly convex, dorsal pores rather small. Microsculpture of the elytra formed by wide transverse meshes, none visible on head or disk of prothorax.

Length, 4.25–5 mm.

Distribution. KASHMIR: Leh, Mulbeck, Nuria, Baltal, Sonemarg, Koty, and Nima-Mud (all *G. Babault*); Sooroo basin, Shimshakarboo and Kargil; Indus Valley, Olthingthang, Mashung, Parkutta, Tolti, Gol, and Skardu; Shigar Valley, Shigar, Juno, Alchori, and Kushumul; Braldo Valley, Chokpiong, Askole, and Biafo; Punmah Valley, Shimtsa, Dumultar, and Tsok; Biah Valley, Paju (all *L. Caporiacco*); Himis and Tang-tse, Mugleb (*G. E. Hutchinson*); Matayan (near Dras), Khardong and Lower Shyok, Shyok Valley between Kataklik and Saser Brangsa (all *J. A. Sillem*). BASHAHR: Poo; Sangla, 8000 feet (*R. N. Parker*). PUNJAB: Keiling, Sumdeo, Sisu, and Zingzinbar, all in Lahul (*G. Babault*); Simla.

Type in my collection.

A very variable species both as regards form and colour; the base of the antennæ and legs are sometimes infuscate, while the humeral, and sometimes also the apical spot on the elytra, may disappear altogether; the elytral striæ vary considerably in depth. Specimens have been met with at from 7000 to 13,000 feet.

377. *Bembidion vorax*, sp. nov.

Very closely allied to *luntaka* and similarly coloured, but on average a little larger. The head is similar, but with the

frontal furrows a little longer and more regular. The prothorax is relatively rather wider, with more strongly rounded sides, the basal area with fewer punctures and only vaguely rugose. The most obvious distinction is in the elytra; in *luntaka* the striae are very lightly impressed and the intervals flat, whereas here the four inner striae are moderately deep and the adjoining intervals somewhat convex. The microsculpture of the elytra is very much the same, but the surface is rather more shiny and without the silky gloss generally seen in *luntaka*.

Length, 5-5.25 mm.

Distribution. UNITED PROVINCES (*H. G. Champion*).

Type in the British Museum; co-types in Mr. Champion's collection and in my own.

378. *Bembidion rubidum*, *Andr.*

Bembidium rubidum Andrewes, Ent. Month. Mag. 1924, p. 196.

Colour black; head and prothorax very dark bluish-green; elytra piceous, with vague metallic-green reflections, nearly the whole of the basal half, except margin and suture, and a large oblique spot on each behind, extending to apex, dull red; palpi, joints 1 to 3 of antennae, and legs ferruginous.

Head convex, with traces only of minute puncturation on each side behind, furrows deep and wide, somewhat uneven; eyes rather flat; antennae reaching basal third of elytra. *Prothorax* convex, cordate, nearly a third wider than head, a third wider than long, base slightly wider than apex, its sides a little oblique, sides rounded in front and sinuate rather before base, hind angles sharply rectangular, with a slight carina; median line fine, base depressed, foveae deep, converging a little forwards, basal area uneven, sparsely and vaguely punctate. *Elytra* convex, ovate, but with evident shoulders, three-fifths wider than prothorax, nearly three-quarters longer than wide, border just reaching stria 5; striae moderately impressed, finely but clearly punctate, 1 entire and fairly deep near apex, the remainder fainter at sides and behind, but 2 impressed and widening out close to apex, apical stria fairly deep, scutellary stria short; intervals moderately convex, dorsal pores clearly marked. The microsculpture is formed by slightly transverse meshes, obsolete on disk of prothorax and on head, but isodiametric meshes can be seen on the neck.

Length, 5.5-6 mm.

Distribution. BASHAHR: Poo; Sanola, 8000 feet (*R. N. Parker*). KASHMIR: Jhelum Valley, Buniyar, 5000 feet (*B. M. Bhatia*).

Type in my collection.

The Buniyar example is an exceptionally dark one.

379. *Bembidion ellops*, sp. nov.

Colour black, shiny; head and prothorax dark green; joints 1 to 3 of antennæ, legs, and two spots on each elytron, including apical border, more or less ferruginous; rest of antennæ and penultimate joint of palpi fuscous. The elytral spots occupy nearly the whole of the basal and apical thirds, the front darker than the hind one.

Head with moderately deep parallel furrows; eyes not very prominent; antennæ reaching basal fourth of elytra; one or two minute punctures on each side of vertex. *Prothorax* convex, cordate, about a third wider than head and as much wider than long, base slightly wider than apex, sides rounded in front and sinuate near base, the hind angles sharp, though slightly obtuse, with a short carina; median line very fine, front transverse impression faint, but with traces of puncturation, basal foveæ deep, the basal area finely rugose-punctate. *Elytra* convex, ovate, three-fifths wider than prothorax, rather more than a half longer than wide, shoulders square, border reaching stria 5; punctate-striate, the striæ moderately deep on disk, shallower at sides and very shallow near apex, 1 deep to apex, 2 a little deeper near apex, 8 deep behind, joining marginal channel behind shoulder, apical stria and scutellary striae both well marked; intervals moderately convex on disk, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by very wide meshes; none on disk of prothorax. *Sternum*: metasternal process bordered.

Length, 4.75 mm.

Distribution. KASHMIR: Jhelum Valley, Buniyar, 5000 feet, 22. vi. 1928 (*B. M. Bhatia*).

Type in the British Museum. I have seen no other example.

380. *Bembidion exornatum*, *Andr.*

Bembidion exornatum Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 13.

Colour piceous: upper surface dark metallic green, elytra with a wide ferruginous margin, extending inwards to stria 5 near base and to stria 6 at middle, slightly wider at apex; joints 1 and 2 of antennæ, basal joints of palpi, and legs ferruginous, the knees darker, the tibiæ paler.

Head convex, with deep, very uneven, parallel furrows; eyes moderately prominent; antennæ rather slender, reaching basal fifth of elytra; surface impunctate, with a small central pore on vertex. *Prothorax* cordate, very convex, about a fourth wider than head and fully a half wider than long, sides strongly rounded in front and sharply sinuate at a fourth

from base, hind angles right, sharp, and projecting a little laterally, with a well marked carina; median line moderately impressed, both transverse impressions deep, hind one longitudinally striate, basal foveæ fairly deep, with one or two transverse striæ, surface vaguely transversely striate, basal area uneven. *Elytra* convex, oval, but with well marked shoulders, rather more than a half wider than prothorax, a half longer than wide, sides gently rounded, border reaching stria 5; striate-punctate, the inner striæ faintly impressed, the outer ones formed by the fine punctures, 1 moderately deep behind, 5 to 7 very faint, but traceable throughout, scutellary striole short, apical stria fairly deep, joining 7; intervals flat, dorsal pores very distinct, a slight tubercle in front of each. Microsculpture of the elytra formed by meshes on average three times wider than long; both head and prothorax are practically without microsculpture. Metasternal process bordered at sides only.

Length, 5.5–6 mm.

Distribution. TIBET: Jikkyop (R. W. G. Hingston).

Type in the British Museum.

Nearly allied to *B. amnicola* Sahlb. from Central Asia, but the pale, wide, elytral border reaches the base, the base of the prothorax is impunctate, the striæ on the elytra are hardly impressed, and the punctures are much finer.

381. *Bembidion sillemi*, *Net*.

Bembidion sillemi Netolitzky *, Att. Mus. Civ. Trieste, xii, 1934, p. 92; id., in Visser, Karakorum, i, 1935, p. 273.

Colour piceous beneath, upper surface dark æneous; palpi, the three and a half basal joints of the antennæ (rest fuscous), and the margin of the elytra from stria 4 outwards ferruginous. These are the colours of the type; in the other three examples the head and prothorax are dark blue and the pale parts are flavous, while the dark central stripe on the elytra is vaguely dilated behind middle.

Head with fairly deep parallel furrows; eyes moderately prominent; antennæ reaching basal fourth of elytra; surface impunctate, with a small central pore on vertex. *Prothorax* cordate, convex, a third wider than head, and about as much wider than long, base slightly arcuate, as wide as apex, sides well rounded in front and sinuate a little before base, hind angles right, sharp, projecting slightly laterally, with the merest trace of a carina; median line very fine, transverse basal sulcus slight, the foveæ small and deep, the basal area finely punctate. *Elytra* convex, oval, the shoulders well marked, rather more than a half wider than prothorax, nearly two-thirds longer than wide, border rounding shoulder

and extending inwards to stria 5; punctate-striate, the striæ moderately impressed on disk and clearly punctate near base, 1 deep to apex, the rest disappearing at about four-fifths, 8 very deep, joining marginal channel behind shoulder, scutellary striole and apical stria both clearly marked; intervals moderately convex on disk only, the two dorsal pores adjoining stria 3. The microsculpture of the elytra is formed by a reticulation of very wide meshes, hardly visible on the disk of the prothorax. The metasternal process is widely and rather finely bordered.

Length, 5–6 mm.

Distribution. KASHMIR: Srinagar (*J. A. Sillem*); Sind Valley, Kangan and Gund (*L. Caporiacco*).

Type in the Zoological Museum, Amsterdam.

382. *Bembidion babaulti*, *Andr.* [Plate IV, fig. 5.]

Bembidium babaulti Andrewes, in *Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya*, 1914, par Guy Babault, *Carab.* 1924, p. 80, t. 1, f. 7; *id.*, *Ent. Month. Mag.* 1926, p. 67.

Bembidion babaulti Jedlička, *Acta Soc. ent. Čech.* xxx, 1933, pp. 5 and 14; *Netolitzky*, *Att. Mus. Civ. Trieste*, xii, 1934, p. 93.

Colour black, shiny; head and prothorax metallic green, elytra with the basal half light or dark brown, the apical fourth dirty white, a piceous fascia separating the two parts; palpi and legs flavous, joints 1 to 4 of antennæ almost entirely ferruginous.

Head with deep parallel uneven furrows, diverging behind; eyes rather prominent; antennæ slender, reaching basal fourth of elytra; one or two minute punctures at sides behind. *Prothorax* convex, cordate, a fifth wider than head, a third wider than long, base truncate, slightly wider than apex, sides rounded in front and sinuate close to base, the hind angles sharply rectangular and sometimes projecting a little laterally, with a short but distinct carina; median line and front transverse impression slight, hind impression and basal foveæ fairly deep, base very clearly punctate, one or two punctures near the front margin. *Elytra* convex, ovate, with well-marked shoulders, three-fifths wider than prothorax, a little more than a half longer than wide, border reaching stria 5; striæ rather lightly impressed, finely and clearly punctate, a little shallower at sides, very faint, though quite visible, on apical third, 1 moderately deep throughout, scutellary striole and apical stria both moderately developed; intervals a little convex on disk only, dorsal pores small. Microsculpture of the elytra formed by extremely fine transverse lines, visible only under the microscope, none on prothorax,

but some isodiametric meshes are visible on head. Metasternal process bordered.

Length, 3.5-4.5 mm.

Distribution. KASHMIR: Jhelum Valley, Garhi, 4000 feet (*L. Caporiacco*). JAMMU: Udhapur, Batota (*C. F. C. Beeson*). PUNJAB: Simla (*N. Annandale*), Fagu and Gahan (*S. N. Chatterjee*); Murree, Thobba (*H. Roberts*); Dharmsala, Triun, and Seraj, Jhibi (*H. G. Champion*); Kulu, Mandi (*G. Babault*); Kangra Valley. UNITED PROVINCES: Naini-Tal, West Almora, Sunderdhunga Valley, Sarda River Gorge, and Gori River Valley and Gorge (all *H. G. Champion*); Dehra Dun (*M. Cameron*), Mussooree, Anarwala, Dhobalwala, Binsar, Bhowali (*A. D. Imms*), Jaunsar, Bear Garden, and Deoban (*H. G. Champion*), Binal Gad (*S. N. Chatterjee*). CHINA: Szechuen.

Type in the British Museum.

A common species met with at elevations varying from 2000 to 9000 feet.

383. *Bembidion parkeri*, sp. nov.

Colour black, head and prothorax dark blue; palpi, joints 1 and 2 of antennæ, with basal half of joints 3 and 4, legs, and the apical border of elytra ferruginous; an oblique apical spot on each elytron flavous; basal third of elytra vaguely dark red.

Head with fairly deep, parallel furrows; eyes moderately prominent; antennæ reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base very little wider than apex, sides rounded in front and sinuate close to base, hind angles sharply rectangular, with a slight carina; median line fine, front transverse impression very shallow, impunctate, basal foveæ fairly deep, basal area vaguely rugose-punctate. *Elytra* moderately convex, ovate, two-thirds wider than prothorax, a half longer than wide, shoulders square, border reaching a point half-way between striæ 4 and 5; rather lightly punctate-striate, 1 deep to apex, the other striæ evanescent from apical fourth, 2 fairly deep close to apex, 3 deep behind, joining marginal channel behind shoulder, apical stria and scutellary striole both present; intervals slightly convex, dorsal pores adjoining stria 3. Microsculpture of the elytra formed by very wide meshes; none on disk of prothorax. *Sternum*: metasternal process bordered.

Length, 4.5 mm.

Distribution. BASHAHR: Sangla, 8000 feet, 23-24. v. 1928 (*R. N. Parker*).

Type in the British Museum. I have seen no other example.

384. *Bembidion atalanta*, sp. nov.

Colour piceous, shiny; head and prothorax metallic green; palpi, joints 1 to 4 of antennæ, legs, and apical third of elytra flavous, basal half of elytra brown, the two parts separated by a piceous band, widening at sides, and produced a little at middle behind, though interrupted by the sutural intervals.

Head convex, small, with deep furrows, which diverge a little behind; eyes moderately prominent; antennæ nearly reaching middle of elytra; one or two punctures on each side behind. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base truncate, but slightly oblique close to the angles, a little wider than apex, sides rounded and gently sinuate near base, the hind angles sharp but slightly obtuse, with a small carina; median line and transverse impressions rather shallow, basal foveæ small, but fairly deep, a little removed from the angles, basal area finely and rather vaguely punctate. *Elytra* convex, ovate, but with evident shoulders, a half wider than prothorax and fully two-thirds longer than wide, border reaching stria 5; rather finely punctate-striate, 1 deep throughout, the outer striæ shallower, and 2 to 7 much shallower behind, though 2 is quite distinct close to apex, scutellary striole rather slight, apical stria deep; intervals a little convex on disk, dorsal pores small but distinct, adjoining stria 3. Microsculpture of the elytra reticulate, the meshes very wide; none on disk of prothorax or middle of head, but there are some isodiametric meshes on the neck.

Length, 4.6 mm.

Distribution. KASHMIR: Lianmarg, 10,000 feet (*M. Cameron*).

Type in the British Museum. The type is the only example seen.

This species might at first sight be mistaken for a large, immature example of *babaulti*, from which it is readily distinguishable by the character of the elytral microsculpture.

385. *Bembidion fuscicrus*, *Motch.*

Bembidium pictum Faldermann (not Dufts.), Mém. Acad. St. Petersb. ii, 1835, p. 357; Motchulsky, Ins. Sib. 1844, p. 243; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 16.

Bembidium maritimum Motchulsky (not Stephens), Käf. Russl. 1850, p. 11.

Bembidium lucidum Mannerheim (not Lec.), Bull. Mosc. 1853, ii, p. 150.

Bembidium fuscicrus Motchulsky, Études Ent. iv, 1855, p. 79 (nom. nov. for *lucidum* Mannh.).

Bembidium mictum Leconte, List Col. N. Amer. i, 1863, p. 14.

Bembidium repandum J. Sahlberg, Not. Sålisk. Fauna Flora Fenn. xiv, 1874, p. 78.

- Bembidium fuscicrum* Hayward, Trans. Amer. Ent. Soc. 1897, pp. 75 and 81.
Bembidion cribrulum Netolitzky, Wien. Ent. Zeit. 1910, p. 217 (nom. nov. for *maritimum* Motch.).
Bembidion fuscicrum Netolitzky, Kol. Rundsch. 1918, p. 25; Müller, Kol. Rundsch. 1918, p. 90.
Bembidion fuscicrus var. *turanicum* Csiki, Col. Cat. Carab. pars 97, 1928, p. 97 (nom. nov. for *pictum* Fald.); Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 92; id., in Visser, Karakorum, i, 1935, p. 271.
Bembidion pictum Andrewes, Trans. Ent. Soc. Lond. 1930, p. 3; Netolitzky, Ark. Zool. 27 A, 18. Col. 4, Carab. 1934, p. 21.
Bembidion fuscicrus Andrewes, Mem. Conn. Acad. x, 1934, p. 24.

Colour piceous; head and prothorax dark green or blue; palpi, antennæ, legs, elytra, propleura, and epipleura flavous to ferruginous, the elytra with a dark vitta along the suture, which often expands just behind middle into a more or less rhomboidal spot, sometimes reaching the margins. Occasionally the penultimate joint of palpi, apex of antennæ, femora, and apex of elytra are more or less infuscate.

Head convex, with fairly deep, somewhat rugose furrows; eyes not prominent; antennæ stout, reaching basal fourth of elytra; one or two minute punctures at sides of vertex. Prothorax convex, cordate, a fifth wider than head, a fourth wider than long, extremities equally contracted, sides rounded, sinuate close to base, hind angles sharply rectangular, with a distinct carina; median line rather shallow, foveæ deep, basal area depressed, finely rugose-punctate. Elytra flat, ovate, though with evident shoulders, fully a half wider than prothorax, three-fifths longer than wide, border reaching stria 5; striae very finely punctate, lightly impressed, the outer ones very lightly, 1 fairly deep throughout, 2 visible to apex, the rest disappearing a little before apex, scutellary striae and apical striae both rather slightly developed; intervals nearly flat, dorsal pores distinct. The microsculpture of the elytra is formed by isodiametric meshes, and similar meshes are visible on the neck, but the rest of the head and the disk of the prothorax are without any.

Length, 4-5 mm.

Distribution. KASHMIR: Baltal; Leh, Mulbeck, and Nuria, all in Ladakh; Salt Lake, Tsho-Morari, and Nima-Mud, all in Rupshu (all *G. Babault*); Kargil and Rongo (*F. Stoliczka*). TIBET: Tuna, Kampa Dzong, Lingga, Tinki Dzong, Kyishong, Shekar, Pangle, Tashidzom, Chodzong (all *R. W. G. Hingston*); Indus Valley, Tolti, 8000 feet, and Skardu, 10,700 feet; Shigar Valley, Shigar, 7400 feet, and Alchori, 7800 feet; Braldo Valley, Hoto, 9700 feet, Chongo, 10,000 feet, and Askole, 10,500 feet; Biaho Valley, Korophon, 10,300 feet, and Paju, 11,700 feet; Punmah Valley, Tsok, 11,600 feet (all *L. Caporiacco*); Pangur Tso, 14,200 feet, and Tso-Nyak region, 14,300 feet

(*G. E. Hutchinson*); Khardong and Lower Shyok (*J. A. Sillem*). TURKESTAN. MONGOLIA. SIBERIA. UNITED STATES (including Alaska). CANADA.

Like most widely spread species, this one exhibits a good deal of variability, especially in the pattern on the elytra. In North American specimens the elytra are mainly flavous, but in those from Central Asia, Tibet, and Kashmir the piceous colour covers a good deal more of the surface (var. *turanicum* Csiki), and sometimes the elytra appear to be mainly piceous (var. *corporaali* Net.), with two pale spots on each. The isodiametric meshes on the elytra at once distinguish the species from all its congeners in this group.

386. *Bembidion psilodorum*, *Andr.*

Bembidion psilodorum Andrewes, Ann. Mag. Nat. Hist. (10) xi, 1933, p. 412; Netolitzky, in Visser, Karakorum, i, 1935, p. 272.

Colour black; head, prothorax, and sometimes elytra with greenish reflections; joints 1 and 2 of antennæ, with basal half of joints 3 and 4, tibiæ, and tarsi flavous; rest of antennæ, penultimate joint of palpi, and (generally) basal two-thirds of femora fuscous; elytra each with a vague dark red humeral, and sometimes also an apical spot (both present in the type, and joined along interval 6).

Head with fairly deep, rather smooth, parallel furrows, extending on to clypeus; eyes flat; antennæ reaching basal fourth of elytra; one or two fine punctures at sides of vertex. *Prothorax* convex, cordate, a fourth wider than head, only a sixth wider than long, base a shade wider than apex, sides rounded in front and sinuate at about a fourth from base, hind angles sharply rectangular, with a well developed carina; median line very fine, front transverse impression quite distinct and bearing a few fine punctures, hind one and basal foveæ fairly deep, basal area finely and fairly closely punctate. *Elytra* convex, ovate, nearly two-thirds wider than prothorax, a half longer than wide, shoulders square, border reaching stria 5; rather lightly punctate-striate, 1 deep to apex, the rest evanescent from about middle, but the very fine punctures on all just visible practically to apex, 8 deep behind, joining marginal channel behind shoulder, the outer striæ, except close to base, formed by the punctures, apical stria and scutellary striae both present, but rather slight; intervals nearly flat, dorsal pores adjoining stria 3. No visible microsculpture. *Sternum*: metasternal process bordered.

Length, 4.5-4.75 mm

Distribution. KASHMIR: Lidar Valley, Pahlgam, 7000 feet, 7. vi. 1928, and Frisлина, 8000 feet, 11. vi. 1928 (*C. F. C.*

Beeson), and Lidar Wat, 9000 feet, 12. vi. 1928 (*B. M. Bhatia*) ; Jhelum Valley, Gulmarg, 8500 feet, 4. vi. 1928 (*C. F. C. Beeson*) ; Sind Valley (*J. A. Sillem*).

Type in the British Museum ; co-types in the Forest Research Institute, Dehra Dun, and in my collection.

Key to the radians-group.

- 1 (4) Microsculpture present on both elytra and prothorax.
- 2 (3) Surface dull, colour dark bronze, microsculpture very distinct, isodiametric throughout ; elytra oval, the shoulders rounded away, the striæ very fine and faintly impressed. Length 4 mm. *cymindulum*, Andr., [p. 182.]
- 3 (2) Surface shiny, elytra blue, microsculpture of the prothorax reticulate but faint, that of the elytra formed by excessively fine transverse lines ; elytra ovate, the shoulders rather square, the striæ punctate and moderately impressed. Length 5.5 mm. *endymion*, sp. nov., [p. 183.]
- 4 (1) Microsculpture wanting (small convex æneous or greenish species of 3-4 mm. in length).
- 5 (8) Base of antennæ and femora ferruginous ; antennæ submoniliform, the joints twice as long as wide.
- 6 (7) Head punctate at sides of vertex ; prothorax a half wider than long, its base a little wider than apex ; elytral striæ with the punctures distinct, at least near base *radians*, Andr., p. 184.
- 7 (6) Head impunctate ; prothorax a fourth wider than long, its base a little narrower than apex ; elytral striæ indistinctly punctate *charon*, Andr., p. 185.
- 8 (5) Base of antennæ and femora black or piceous.
- 9 (10) Antennæ long and filiform, the joints three times as long as wide ; elytral striæ distinctly impressed, at least on disk, stria 7 visible, and an apical stria present *psuchrum*, Andr., [p. 186.]
- 10 (9) Antennæ submoniliform, the joints twice as long as wide ; elytral striæ hardly impressed, formed almost entirely by the fine punctures, stria 7 and apical stria both wanting, the apical pore isolated *algidum*, sp. nov., [p. 187.]

387. *Bembidion cymindulum*, Andr.

Bembidion cymindulum Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 13.

Colour piceous, upper surface very dark bronze.

Head with moderately deep, parallel furrows; eyes flat; antennæ rather stout, reaching basal fourth of elytra; surface impunctate. *Prothorax* moderately convex, cordate, a sixth

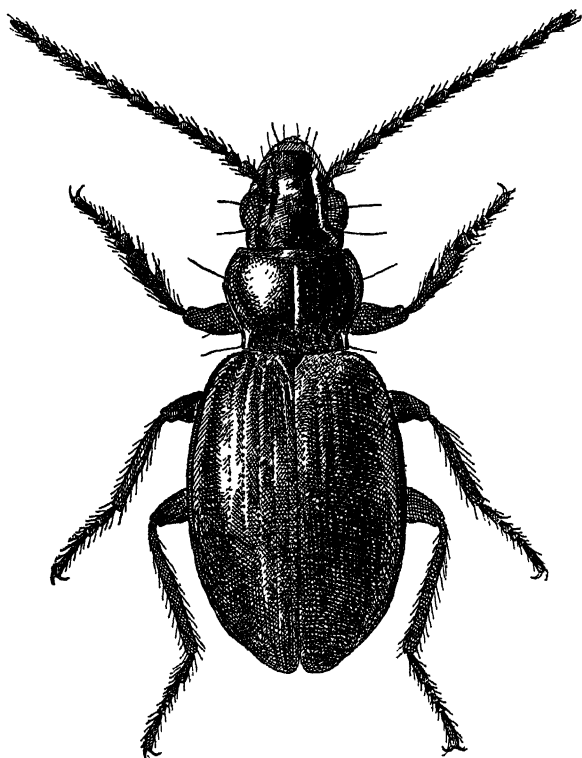


Fig. 27.—*Bembidion cymindulum* Andrewes.

wider than head, a third wider than long, equally contracted at extremities, sides moderately rounded in front and sinuate not far from base, hind angles sharply rectangular, projecting a little laterally, without carina; median line moderately impressed, front transverse impression very shallow, hind one fairly deep, as are the basal foveæ, which adjoin the hind angles, disk vaguely, basal area more strongly, irregularly striate, but not punctate. *Elytra* somewhat depressed, oval,

the shoulders practically rounded away, three-fifths wider than prothorax, a half longer than wide, sides rather strongly rounded, border reaching stria 5, bent back slightly at its extremity, but not angulate; punctate-striate, the striae (except 1) only impressed, and then very lightly, on middle of disk, the punctures faint, the outer striae very vaguely indicated, scutellary striole very short, apical stria fine but fairly distinct; intervals flat, sutural one somewhat raised, dorsal pores adjoining stria 3, the front rather more conspicuous than the hind one. Microsculpture isodiametric and very pronounced, though rather less conspicuous on the head and prothorax than on the elytra, some of the meshes on the prothorax a little wider than long. Metasternal process unbordered, a slight transverse impression behind it.

Length, 4 mm.

Distribution. TIBET, Kyetrak; Phuse La (R. W. G. Hingston).

Type in the British Museum.

A very isolated form, apparently without any near allies.

388. *Bembidion endymion*, sp. nov.

Colour piceous, upper surface shiny, the head and prothorax very dark green, elytra blue; palpi, joint 1 of antennae, and legs ferruginous.

Head with moderately deep, uneven furrows, evidently diverging behind, only vaguely continued on to clypeus; eyes rather prominent; antennae reaching basal fourth of elytra; vertex with some very fine punctures and a pore at middle. *Prothorax* convex, cordate, a fifth wider than head, a third wider than long, base a little wider than apex, sides rounded in front, sinuate near base, hind angles sharply rectangular, with rather a slight carina; median line moderately deep, front transverse impression slight, basal foveae fairly deep, the whole basal area depressed and vaguely punctate. *Elytra* convex, ovate, a little pointed at apex, nearly twice as wide as prothorax, about three-fifths longer than wide, shoulders rather square, border reaching a point opposite stria 5; moderately punctate-striate, the outer striae formed by the punctures, 1 deep to apex, the others evanescent at apex, 7 and scutellary striole very fine, 8 deep behind, joining marginal channel behind shoulder, apical stria faint, so that the pore is conspicuous; sutural interval a little raised, the rest flat, two dorsal pores adjoining stria 3. The microsculpture of the elytra is formed by extremely fine transverse lines, visible only under the microscope; on the prothorax it is reticulate but very faint. *Sternum*: metasternal process unbordered.

Length, 5.5 mm.

Distribution. UNITED PROVINCES : Haldwani district (*H. G. Champion*).

Type in the British Museum. This is the only specimen I have seen.

The upper surface is extraordinarily like that of *phædrum*, but the blue of the elytra is a shade brighter ; the elytra are larger compared with the head and prothorax, the striæ are less impressed, the apical stria very faint, the surface with a more evident gloss. The lack of a border on the metasternal process and the obsolescence of the apical stria are both unusual in conjunction with the other characters ; possibly the unique specimen is aberrant in these respects.

389. *Bembidion radians*, *Andr.*

Bembidium radians Andrewes, Ent. Month. Mag. 1922, p. 177 ;
id., Ent. Month. Mag. 1926, p. 67.

Bembidion radians Andrewes, Trans. Ent. Soc. Lond. 1930, p. 3.

Colour black, with brassy reflections, very shiny : upper surface dark bronze, sometimes greenish, joints 1 and 2 of antennæ, with base of 3 and 4, apical joint of palpi, and legs dark red, tibiæ a little lighter.

Head with moderately deep, parallel furrows, neck wide ; eyes rather flat ; antennæ stout, hardly reaching basal fourth of elytra ; a few small punctures behind. *Prothorax* convex, cordate, a fourth wider than head and fully a third wider than long, base truncate, slightly narrower than apex, sides gently rounded and sinuate at about a fourth from base, hind angles sharply rectangular, with a well developed carina ; median line fairly deep at middle, front transverse impression deep at sides, basal foveæ deep, adjoining the angles, base somewhat depressed and moderately punctate, a few punctures generally extending forwards along sides and median line, one or two sometimes on disk. *Elytra* convex, oval, shoulders rounded, two-fifths wider than prothorax, rather more than a half longer than wide, border not quite reaching stria 5 ; punctate-striate, both striæ and punctures moderately deep on disk, rather faint at sides and behind, 1 deep throughout, 2 a little deeper than 3 to 5, joining 1 at apex and moderately deep at that point, scutellary stria short, apical stria fairly deep, joining 5 ; intervals moderately convex on disk, flat elsewhere, dorsal pores large. No microsculpture on elytra or prothorax ; some isodiametric meshes visible on neck. Metasternal process unbordered, or with a rudimentary border only.

Length, 3.6–4 mm.

Distribution. PUNJAB : Simla Hills, Baghi above Kufri, and Narkanda (*S. W. Kemp*); Suttoo (*H. G. Champion*). BASHAHR : Khadralla (*R. N. Parker*). UNITED PROVINCES : West Almora, Sunderdhunga Valley, Pindar Valley, Naini Tal, Ranikhet, Bhatkot, Gori River Gorge (*H. G. Champion*).

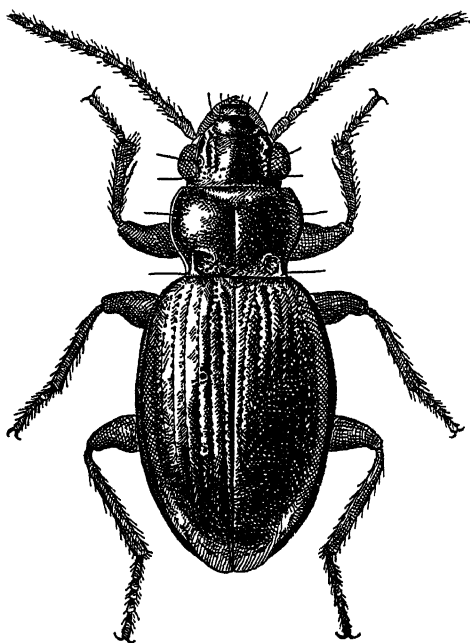


Fig. 28.—*Bembidion radians* Andrewes.

BENGAL : Darjeeling ; Gopaldhara. SIKKIM : Lachung, Karponang, and Tonglu (*H. Stevens*) ; Phadamchen, Gnatong, and Tangu (*R. W. G. Hingston*). TIBET : Jelep La, Yatang, Gautsa, Phari, and Rongshar Valley (*R. W. G. Hingston*).

Type in my collection.

In the Simla examples the legs are lighter in colour and the upper surface has a distinct greenish tinge.

390. *Bembidion charon*, *Andr.*

Bembidium charon Andrewes, Ent. Month. Mag. 1926, pp. 67 and 74.

Colour piceous, upper surface dark æneous ; joints 1 and 2 of antennæ, with basal half of 3 and 4, base of palpi, and legs ferruginous ; rest of antennæ and penultimate joint of palpi fuscous.

Head with fairly deep, parallel furrows, neck wide; eyes flat; antennæ submoniliform, reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head and as much wider than long, base truncate, slightly narrower than apex, sides gently rounded, sinuate near base, hind angles sharply rectangular, with a distinct carina; median line moderately deep, front transverse impression fairly deep at sides, base depressed, the foveæ fairly deep, a few coarse punctures along front and side margins, basal area coarsely rugose-punctate. *Elytra* convex, oval, two-thirds wider than prothorax, three-fifths longer than wide, shoulders rounded, border reaching stria 5; punctate-striate, the striæ fairly deep on disk, very shallow at sides, obsolete near apex, 1 deep throughout, 2 reappearing close to apex and joining 1, scutellary stria very short, apical stria moderately impressed, joining 7; intervals moderately convex on disk, flat at sides, dorsal pores clearly marked. No microsculpture, except for some isodiametric meshes on the neck. Metasternal process with only a suggestion of a border.

Length, 3.5-4 mm.

Distribution. UNITED PROVINCES: Kumaon, Gori River Gorge, 5000-9000 feet, and Burphu in the Gori Valley, 11,500 feet (*H. G. Champion*).

Type in the British Museum.

391. *Bembidion psuchrum*, *Andr.*

Bembidium psuchrum Andrewes, Ent. Month. Mag. 1922, p. 241.

Colour very dark metallic green, extremely shiny; tibiæ (more or less), apical joint of palpi, and claws reddish.

Head with deep furrows, converging slightly in front, the space between them very convex; eyes flat; antennæ stout, reaching middle of elytra; surface impunctate. *Prothorax* convex, cordate, about a fifth wider than head, and as much wider than long, base truncate, evidently narrower than apex, sides well rounded in front, strongly contracted behind and sinuate near base, marginal channel very narrow, hind angles sharply rectangular, with a slight, though quite evident, carina; median line moderately deep throughout, front transverse impression deep only at sides, foveæ fairly deep, adjoining angles, base depressed, subrugose and with a few punctures. *Elytra* moderately convex, elongate-oval, the shoulders rounded but evident, a half wider than prothorax, a little more than a half longer than wide, border reaching stria 5; punctate-striate, both striæ and punctures clearly marked at base of disk, obsolescent at sides and behind, though fine punctures are visible almost to apex, stria 1 deep to apex, where it joins 2, which is quite distinct at that point,

scutellary striole very short (in one example fused with stria 1), apical stria short but fairly deep, joining 5; intervals moderately convex on disk only, flat elsewhere, 1 somewhat raised, dorsal pores rather small, surface transversely impressed behind base, especially at sides. No visible microsculpture.

Length, 4 mm.

Distribution. UNITED PROVINCES: Kumaon, Sunderdhunga Valley, 8000–12,000 feet (*H. G. Champion*).

Type in the British Museum.

392. *Bembidion algidum*, sp. nov.

Colour very dark æneous above, black beneath; underside of joint 1 of antennæ and legs piceous, rest of antennæ and palpi black.

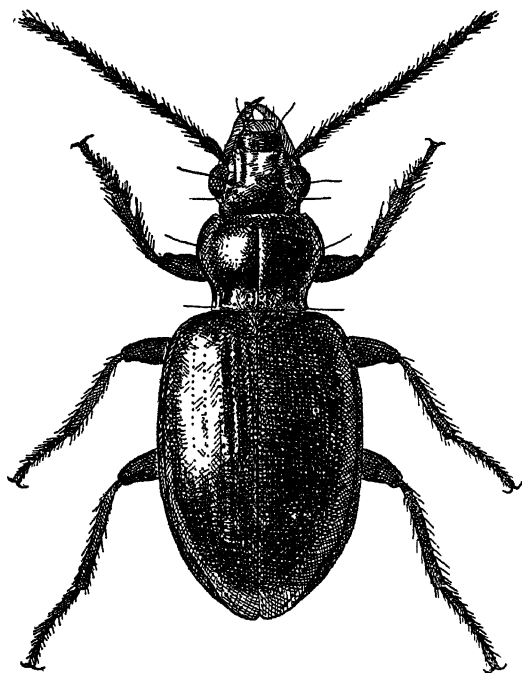


Fig. 29.—*Bembidion algidum*, sp. nov.

Head with fairly deep, irregular furrows, diverging a little behind; genæ very short; eyes flat; antennæ moniliform, but reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, a fourth wider than head, a third wider than long, base a little narrower than apex, sides strongly rounded in front and sinuate a little before base, the hind

angles sharply rectangular, with a small carina; median line fine, front transverse impression distinct at sides and containing a few fine punctures, hind one and basal foveæ fairly deep, surface smooth and shiny, the basal area sparsely punctate. *Elytra* convex, oval, two-thirds wider than prothorax, rather more than a third longer than wide, shoulders rounded away, border reaching stria 5; finely striate-punctate. the striæ evanescent behind, hardly impressed, except 1, which deepens towards apex, 8 very deep, joining marginal channel behind shoulder, shallower behind, where it curves round and joins 1, 7, scutellary stria, and apical stria all obsolete, the apical pore practically isolated; intervals flat, 3 with two small pores adjoining stria 3. Surface shiny, without microsculpture. *Sternum*: metasternal process with only a suggestion of a border, but with a depression behind it.

Length, 3-3.4 mm.

Distribution. KASHMIR: Gulmarg, Jhelum Valley, 8000-9000 feet (*C. F. C. Beeson* and *M. Cameron*); Khelmanmarg, 11,000 feet (*C. F. C. Beeson*).

Type in the British Museum, co-types in the Forest Research Institute, Dehra Dun, and in my collection.

Key to the varium-group.

- 1 (6) *Elytra* with the apical stria wanting and the pore consequently isolated; no microsculpture present.
- 2 (5) *Elytra* normally striate, the dorsal pores clearly placed on interval 3. Length 2.5-3.1 mm. -
- 3 (4) *Elytra* with a tessellated pattern of light and dark patches, the carina in the hind angle of the prothorax rudimentary [p. 189.
latiplaga, Chaud.,
- 4 (3) *Elytra* uniformly æneous or blue, the carina in the hind angle of the prothorax short but distinct *eupages*, Andr., p. 190.
- 5 (2) *Elytra* abnormally striate, striæ 3 to 7 represented by punctures near the shoulders only, the surface otherwise smooth, the position of the dorsal pores indeterminate; colour black. Length 3-3.5 mm. [p. 192.
lissonotum, sp. nov.,
- 6 (1) *Elytra* with the apical stria present.
- 7 (10) No microsculpture present; *elytra* with rounded shoulders; colour æneous, with a faint pale spot near the apex of each. Small æneous species of 3-3.5 mm. in length.
- 8 (9) Upper surface æneous; prothorax with the base distinctly punctate, a large shallow pore on each side of disk in front; *elytra* with the shoulders present, though rounded. Length 3-5 mm. [p. 193
leptaleum, Andr.,

- 9 (8) Upper surface æneous, with greenish reflections; prothorax with the base only vaguely punctate, the disk without pores; elytra with the shoulders practically rounded away. Length 3-3.5 mm. *infans*, Andr., p. 195.
- 10 (7) Microsculpture present; elytra with the shoulders quite evident, though sometimes a little rounded, either with a pattern present or at least a conspicuous pale apical spot on each. Larger species, of 3.75-5 mm. in length.
- 11 (12) Antennæ with joint 1 dark ferruginous; elytra with the striæ entire, their colour greenish-black, with irregular, tessellated fasciæ; the microsculpture reticulate, formed by very wide meshes. Length 4-5 mm. ... *varium*, Oliv., p. 195.
- 12 (11) Antennæ with joints 1 and 2 pale ferruginous; elytra with the striæ evanescent at sides, their colour black, each with a pale mark towards apex; microsculpture formed by very fine transverse lines, visible only under the microscope.
- 13 (14) Legs mainly piceous; each elytron with a pale, slightly transverse spot near apex; antennæ stout; prothorax neither with the lateral channels widening nor with the margin strongly reflexed behind, the base distinctly punctate. Length 4-4.5 mm. [p. 197.
exquisitum, Andr.,
- 14 (13) Legs ferruginous; each elytron with a pale, comma-shaped spot near apex; antennæ slender; prothorax with the lateral channels widening and the margin strongly reflexed behind, the base indistinctly punctate. Length 3.75-4 mm. *cupido*, sp. nov., p. 198.

393. *Bembidion latiplaga*, Charud.

Bembidium latiplaga Chaudoir *, Bull. Mosc. 1850, ii, p. 185; Ganglbauer, Käf. Mitteleur. i, 1892, p. 169; Bedel, Cat. rais. Col. N. Africa i, 1896, pp. 61 and 68; Andrewes, Rec. Ind. Mus. xviii, 1919, p. 100.

Bembidium quadripilotum Schauffuss, Verh. zool.-bot. Ges. Wien, xxxi, 1881 (1882), p. 620; Netolitzky, Ent. Blätt. 1914, p. 55 (*tetraspilotum*).

Bembidion latiplaga Müller, Kol. Rundsch. 1918, p. 112.

Colour piceous, shiny, upper surface with green or blue metallic reflections; elytra each with a large vague humeral patch and the apex reddish, a large round apical spot, covering intervals 4 to 8, flavous; palpi, joints 1 to 4 of antennæ, and legs mainly ferruginous, penultimate joint of palpi and femora darker.

Head with short, deep furrows, converging slightly in front; eyes moderately prominent; antennæ submoniliform, reaching basal fourth of elytra; surface practically impunctate. *Prothorax* convex, cordate, hardly wider than head, a fourth wider than long, base with its sides very oblique, slightly narrower than apex, sides strongly rounded in front, sinuate quite close to base, the hind angles projecting a little on each side as a sharp rectangular tooth, without, or with only a rudimentary carina; median line faint, basal foveæ small but deep, near the angles, base depressed, with few but coarse punctures. *Elytra* convex, ovate, but with well marked shoulders, fully a half wider than prothorax, a half longer than wide, border extending inwards to a point a little beyond the base of stria 5, a clavicular fold present; striæ moderately deep on disk, very clearly punctate, faint and hardly impressed at sides, evanescent towards apex, 1 deep throughout, 2 just visible to apex, scutellary stria rather short, apical stria obsolete, the pore consequently isolated; intervals a little convex on disk only, dorsal pores small, on the interval. No microsculpture.

Length, 2.5-3 mm.

Distribution. PERSIA: Seistan, Labi Baring, and Nasratabad (S. W. Kemp). MEDITERRANEAN LITTORAL. RUSSIA. SIBERIA.

Type in Mr. René Oberthür's collection.

The Seistan examples differ a little from the typical Mediterranean form, being a little more stoutly built and of a rather brighter greenish tint, but they are similar in other respects.

394. *Bembidion eupages*, Andr.

Bembidion eupages Andrewes, Mem. Conn. Acad. x, 1934, pp. 25 and 27.

Bembidion mæoticum Netolitzky (not Kolenati), Att. Mus. Civ. Trieste, xii, 1934, p. 99; id., in Visser, Karakorum i, 1935, p. 275 (?).

Colour black beneath, upper surface æneous or blue and very shiny; palpi, joints 1 to 3 of antennæ (rest fuscous), apex of elytra and venter, trochanters, tibiæ, and tarsi ferruginous.

Head with fairly deep, nearly parallel furrows, converging a little on clypeus, and diverging behind; eyes prominent; antennæ short, submoniliform; surface impunctate. *Prothorax* convex, cordate, slightly wider than head, nearly a third wider than long, base truncate at middle, very oblique at sides, narrower than apex, sides strongly rounded in front and contracted behind, with a rather wide marginal channel, sinuate close to the hind angles, which project on each side

as a small, sharp, though slightly obtuse tooth, bounded by a short oblique carina, within which are the small, deep, rounded foveæ; median line very fine, transverse impressions evident, the hind one with a few deep punctures, and one or two generally transverse punctures along the basal margin, surface otherwise impunctate. *Elytra* moderately convex, subquadrate, a half wider than prothorax and a little more than a half longer than wide, shoulders square, border reaching stria 4; striate-punctate, striæ 1 and 8 only impressed, the remaining

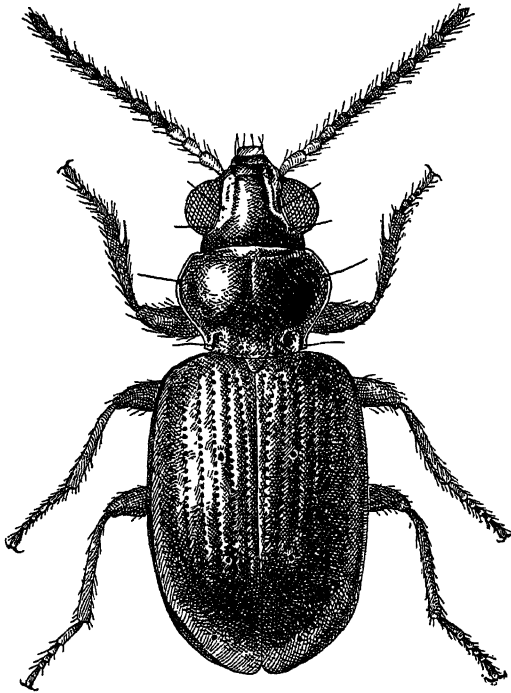


Fig. 30.—*Bembidion eupages* Andrewes.

striæ formed by the punctures, which are as clearly marked in the outer as in the inner striæ, but 2 to 7 all disappear behind, scutellary striae formed by rather large punctures, apical stria wanting, and its pore consequently isolated; intervals flat, 1 raised behind, dorsal pores on interval 3 at about a fourth and three-fifths, a fine clavicular fold present. No microsculpture. Metasternal process bordered, and with a transverse groove behind it.

Length, 2·9–3·1 mm.

Distribution. KASHMIR: Lakut Dal Lake, 5200 feet, and Phashakuri, near Pampur, 5200 feet (both *G. E. Hutchinson*); Srinagar (*L. Caporiacco* and *J. A. Sillem*); "Kashmir" (*H. T. Pease*—Indian Museum).

Type in my collection.

395. ***Bembidion lissonotum***, sp. nov.

Colour black, very shiny; base of femora, trochanters, and coxæ dull red.

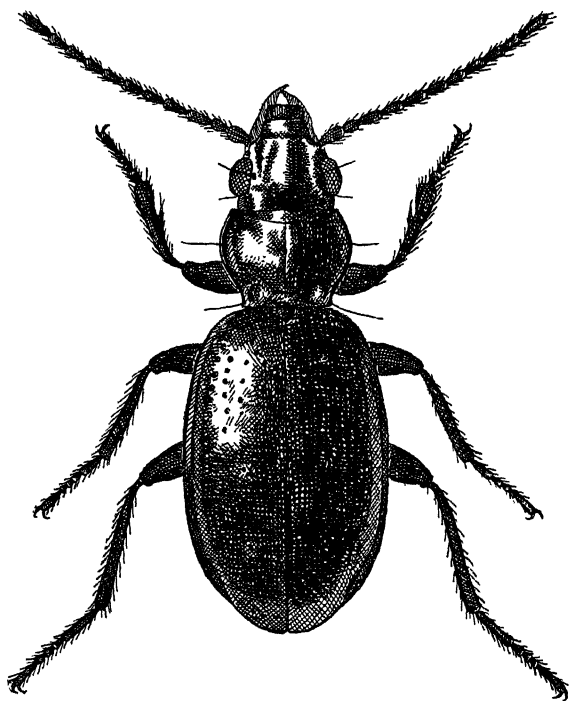


Fig. 31.—*Bembidion lissonotum*, sp. nov.

Head with fairly deep, regular furrows, diverging slightly behind; eyes flat; genæ very short; antennæ submoniliform, fully reaching basal third of elytra; surface impunctate. *Prothorax* subconvex, cordate, about a fourth wider than head, a third wider than long, apex evidently wider than base, which is rather strongly and arcuately produced at middle, the sides oblique and a little emarginate, sides well rounded in front and sinuate just before the hind angles,

which stand out on each side as a small, sharp, rectangular tooth, a short carina present in each angle, the pores from which the two lateral setæ spring unusually clear; median line very fine, front transverse impression slight, hind one and basal foveæ fairly deep, disk smooth, the transverse basal impression crenulate. *Elytra* convex, oval, separately rounded at apex and with a small re-entrant angle, about two-thirds wider than prothorax, nearly a half longer than wide, border reaching a point opposite stria 5, a vague channel, deeper at each end, running round the middle of base, with a few punctures behind it; striæ 8 and 9 lie together in the wide marginal channel and join behind shoulder, where there are a few large punctures, one or two smaller ones lying along the course of the channel; this becomes very shallow behind and rounds apex, joining stria 1, which is faintly impressed at that point; otherwise striæ 1 and 2, the scutellary striole, and the apical stria are all wanting, the apical pore being consequently isolated; striæ 3 to 7 are represented by punctures only, few and small on 3 and 7, fairly large on 4 to 6, hardly extending beyond middle, except under microscopic examination, and none reaching base; as all the punctures are faintly aciculate in front and open behind, as no setæ are present, and as the position of the punctures varies in the three examples, I am unable to say what dorsal pores are present, or what their position is; the surface is flat, and devoid of microsculpture. *Sternum*: metepisternal process bordered and somewhat crenulate, with an impression behind it.

Length, 3-3.5 mm.

Distribution. KASHMIR: Lolab Valley, Nagmarg, 7500 feet, 19.v.1928 (C. F. C. Beeson—Forest Research Institute, Dehra Dun).

Type in the British Museum. The puncturation of the elytra, as described above, is that seen in the type-specimen; in the other two examples it is considerably reduced and concentrated near the shoulders on striæ 4 to 6. I know of no other species bearing any resemblance to this one.

396. *Bembidion leptaleum*, Andr.

Bembidium leptaleum Andrewes, Ent. Month. Mag. 1922, p. 242.

Colour piceous beneath, upper surface æneous, shiny; joints 1 to 3 of antennæ, with basal half of joint 4, palpi (penultimate joint fuscous), apical margin of elytra, and a very small indistinct spot at apical third of each elytron, covering intervals 6 and 7, rufous.

Head with shallow furrows, curving outwards to the hind supraorbital pore, a few transverse striæ on their inner margins, neck thick; eyes not prominent; antennæ

short, moniliform, reaching very little beyond base of elytra ; surface impunctate. *Prothorax* convex, cordate, about a fourth wider than head, nearly a half wider than long, base truncate, hardly wider than apex, sides rounded and faintly sinuate close to base, hind angles in the form of a minute rectangular tooth, each with a short but very distinct carina ; median line fine, but strongly impressed just in front of base, foveæ deep, the outer part, adjoining the carina, separated from the inner part by a small raised area, base a little depressed, with a few moderate punctures, one or two punctures along front transverse impression. *Elytra* convex, oval, about a

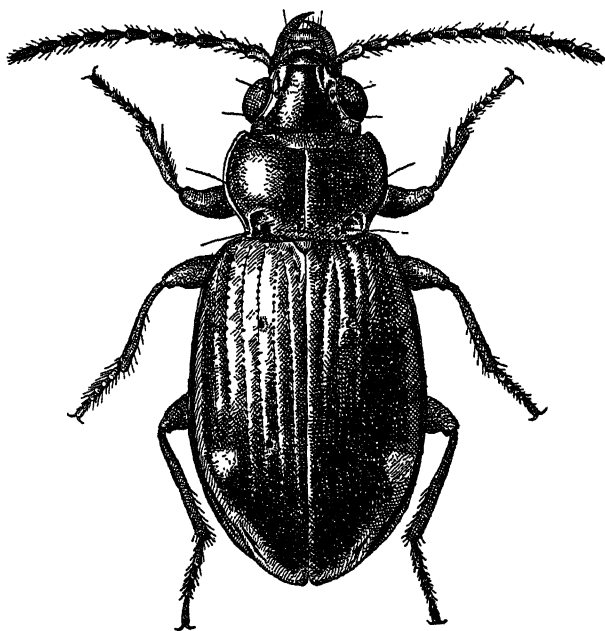


Fig. 32.—*Bembidion leptaleum* Andrewes.

third wider than prothorax, nearly a half longer than wide, border ending in a slight tooth between striae 5 and 6 ; punctate-striate, the striae rather shallow and evanescent behind, stria 1 deep to apex, where it joins 2, which is deep close to apex only, interval 2 at that point being very wide, apical stria fairly deep and rather long, scutellary striole short, but very deep at base ; intervals slightly convex on disk, dorsal pores on the interval, though not very far removed from stria 3, surface a little less shiny than that of the head and prothorax. No microsculpture, except for some isodiametric meshes on the neck.

Length, 3.5 mm.

Distribution. SIKKIM : Lachung, 9000 feet (*H. Stevens*).

Type in my collection.

397. *Bembidion infans*, *Andr.*

Bembidion infans Andrewes, The Carabidæ of the Third Mount Everest Expedition, 1924, Trans. Ent. Soc. Lond. 1930, pp. 3 and 14.

Colour black, upper surface metallic green ; antennal joints 1 and 2, with base of 3 and 4, legs, and a small, barely distinguishable spot near apex of elytra rather dark ferruginous, coxæ more or less piceous, rest of antennæ and palpi fuscous.

Head with fairly deep, rather smooth, frontal furrows, diverging strongly behind ; eyes only moderately prominent ; antennæ short and stout, moniliform ; surface impunctate. *Prothorax* cordate, convex, a fourth wider than head and a third wider than long, base bordered, hardly wider than apex, sides well rounded in front and gently sinuate at about a fourth from base, hind angles sharp, slightly acute, and projecting a little laterally, with a short carina ; median line faint, not reaching extremities, front transverse impression shallow, hind one fairly deep, basal foveæ deep, adjoining the angles, surface smooth, with a very few punctures along the course of the hind impression. *Elytra* convex, ovate, the shoulders rounded, a half wider than prothorax and a little more than a half longer than wide, sides gently rounded, the border only reaching a point opposite stria 6 ; punctate-striate, the striæ moderately impressed on disk and disappearing near apex, 1 fairly deep throughout, 2 reaching apex and fairly deep at that point, scutellary stria moderately long, apical stria fairly deep ; intervals slightly convex, 3 with two pores on the interval at a third and two-thirds. No micro-sculpture. Metasternal process conspicuously bordered.

Length, 3-3.5 mm.

Distribution. TIBET : Yatang (*R. W. G. Hingston*).

Type in the British Museum.

398. *Bembidion varium*, *Oliv.*

Carabus varius Olivier, Enc. Méth. v, 1790, p. 358 ; id., Ent. iii, 1795, 35, p. 110, t. 14, f. 165.

Bembidium varium Bates, Trans. Ent. Soc. Lond. 1883, p. 269 ; Ganglbauer, Käf. Mitteleur. i, 1892, pp. 152 and 159 ; Andrewes, Rec. Ind. Mus. xviii, 1919, p. 100.

Bembidion varium Müller, Kol. Rundsch. 1918, p. 60 ; Andrewes, Mem. Conn. Acad. x, 1934, p. 25.

Colour piceous ; head and prothorax dull bronze-green ; elytra with the epipleura and a very variable pattern on the

upper surface flavous ; basal joints of the palpi and antennæ, to some extent, and legs dark ferruginous, the femora sometimes with an æneous tinge. The pattern on the elytra consists of a pale spot on each side near shoulder and another near apex, with two irregular fasciæ at a third and two-thirds respectively ; sometimes the pale colour extends over a much wider area, and sometimes it almost disappears.

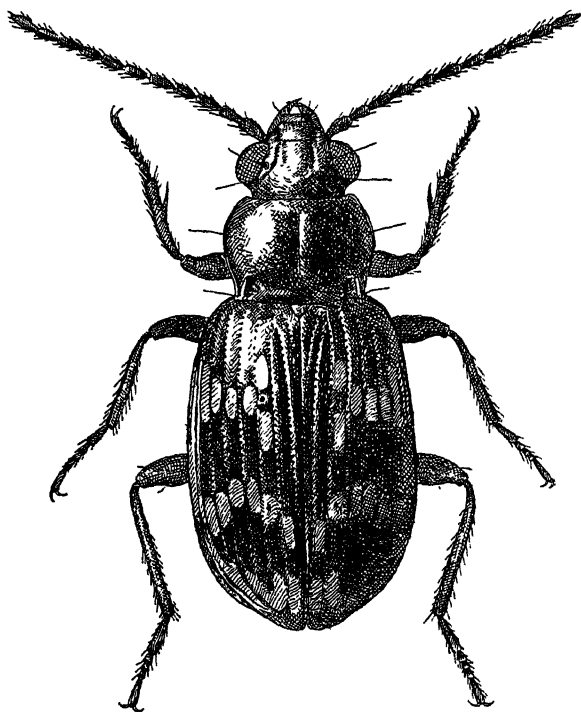


Fig. 33.—*Bembidion varium* Olivier.

Head with rather shallow, parallel furrows ; eyes moderately prominent ; antennæ reaching basal third of elytra ; surface impunctate. *Prothorax* convex, cordate, a fifth wider than head and nearly a half wider than long, base truncate, slightly wider than apex, sides rounded in front and sinuate a little before base, hind angles sharply rectangular, with a conspicuous carina ; median line very faint, hind transverse impression and basal foveæ moderately deep, the latter at some little distance from the angles, the basal area very vaguely rugose-punctate. *Elytra* moderately convex, about a half wider

than prothorax and as much longer than wide, shoulders marked, sides nearly parallel, border reaching stria 5; punctate-striate, the striae moderately deep on disk, and hardly shallower at sides and behind, scutellary stria and apical stria both moderately developed; intervals slightly convex, 1 a little raised, dorsal pores rather conspicuous, on interval 3. The microsculpture of the elytra consists of fine transverse lines, forming wide meshes; that of the head and prothorax is isodiametric and very conspicuous. Metasternal process bordered.

Length, 4–5 mm.

Distribution. KASHMIR: Jhelum Valley, 5000 feet (*H. T. Pease*); Lokut Dal Lake, 5200 feet, and "edge of Phashakuri near Pampur" (*G. E. Hutchinson*). PERSIA: Seistan, Jellalabad (*S. W. Kemp*). EUROPE. NORTH ASIA. NORTH AFRICA.

Type not traced.

This common and very variable palæarctic species just reaches the Himalayas, but does not reach the plains of India. Like other insects with a wide area of distribution, *varium* has been described again and again, but I have not thought it necessary to introduce here the names of its various synonyms and varieties, which can be readily ascertained from a catalogue of palæarctic species.

399. *Bembidion exquisitum*, *Andr.*

Bembidium exquisitum Andrewes, Ent. Month. Mag. 1923, p. 99.

Bembidion exquisitum Jedlička, Acta Soc. ent. Čech. xxix, 1932, p. 47; id., Acta Soc. ent. Čech. xxx, 1933, pp. 5 and 15.

Colour black, shiny; joints 1 and 2 of antennæ, with base of 3 and 4, and apex of elytra ferruginous, a small apical spot on each elytron flavous, legs piceous or reddish.

Head convex, with moderately deep, parallel furrows, diverging behind, front supraorbital pore large and unusually elongate; eyes not very prominent; antennæ reaching basal third of elytra; surface sparsely and minutely punctate. *Prothorax* convex, subcordate, quite a fourth wider than head, two-fifths wider than long, base truncate, evidently wider than apex, sides gently rounded in front and not much contracted behind, only slightly sinuate before base, hind angles sharply rectangular, each with a well marked carina; median line rather shallow, front transverse impression with one or two coarse punctures at middle, hind one and foveæ deep, basal area coarsely and somewhat rugosely punctate, disk vaguely transversely striate. *Elytra* convex, ovate, but with evident shoulders, fully a half wider than prothorax, a half longer than wide, border hardly extending inwards beyond stria 6; punctate-striate, the striae moderately deep

on disk and only a little shallower at sides, evanescent near apex, 1 deep throughout and 2 clearly impressed close to apex, scutellary stria rather short, apical stria well marked; intervals moderately convex on disk, 1 raised, 3 with two pores on the interval, slightly removed from stria 3, surface a little depressed behind base. Microsculpture of the elytra formed by extremely fine transverse lines, only visible under the microscope, none on prothorax; on the head faint isodiametric meshes can just be distinguished. Metasternal process bordered.

Length, 4-4.5 mm.

Distribution. PUNJAB: Simla Hills, Kotgarh, 7000 feet (S. N. Chatterjee). UNITED PROVINCES: West Almora (H. G. Champion). CHINA: Szechuen and Yunnan.

Type in the British Museum.

This species does not appear to have any near ally.

400. *Bembidion cupido*, sp. nov.

Colour piceous beneath, black above, shiny and slightly iridescent; palpi, joints 1 and 2 of antennæ, with the base of 3 and 4, legs, a spot near the apex of each elytron and another one at apex, the two spots meeting along margin and forming a comma-shaped mark, ferruginous.

Head with fairly deep, uneven furrows, extending on to clypeus, where they converge a little; eyes rather prominent; antennæ slender, extending little beyond base of prothorax; surface (chiefly in the type-specimen) with some irregular transverse rugæ on vertex. *Prothorax* convex, subcordate, a fourth wider than head, a third wider than long, base bisinuate, evidently wider than apex, sides gently rounded in front and strongly reflexed behind, the marginal channel widening considerably behind, the hind angles projecting on each side as a small but very sharp rectangular tooth, each containing a somewhat oblique carina; median line fine, both transverse impressions moderately deep, basal foveæ deep, basal area finely and vaguely punctate. *Elytra* moderately convex, ovate, a third wider than prothorax, two-thirds longer than wide, shoulders rather square, border reaching stria 6; punctate-striate, the punctures very clear, only the inner striae impressed, 1 and 2 moderately deep and meeting at apex, 2 a little shallower before apex, the other striae evanescent behind, though not at sides, 8 deep behind, joining the marginal channel behind shoulder, apical stria and scutellary striae both quite distinctly marked; sutural interval raised behind, the other inner intervals slightly convex, dorsal pores on interval 3, placed far forward, a transverse impression on the surface in the vicinity of the front pair.

Microsculpture of the elytra formed by transverse lines barely visible under the microscope ($\times 80$); that of the prothorax quite visible, even on disk, and formed by very wide meshes; on the head isodiametric meshes are just visible. *Sternum*: metasternal process bordered.

Length, 3.75–4 mm.

Distribution. ASSAM: Cherra-Punji, 4400 feet, 2–8. x. 1914 (*S. W. Kemp*).

Type in the Indian Museum, Calcutta; co-type in my collection. Both specimens are slightly damaged.

Key to the niloticum-group.

- 1 (4) Frontal foveæ not widening out on clypeus; colour bronze, with a pale spot at the apex of each elytron; microsculpture isodiametric, very distinct.
- 2 (3) Frontal foveæ deeply impressed; elytra moderately shiny, the femora usually more or less dark. Length 3.5–4 mm. *niloticum*, Dej., p. 199.
- 3 (2) Frontal foveæ shallow; elytra dull, femora pale. Length 4–4.5 mm. *sobrinum*, Boh., p. 201.
- 4 (1) Frontal foveæ widening out on clypeus; no microsculpture present.
- 5 (6) Form stout. Antennæ reaching basal third of elytra, prothorax with the sides of base oblique, but not emarginate. Elytra dark aneous, each with a pale vitta. Length 3–3.5 mm. [p. 202.
trimaculatum, Andr.,
- 6 (5) Form slender. Antennæ hardly extending beyond base of the elytra, prothorax with the sides of base both oblique and emarginate. Elytra uniform dark metallic green. Length 3 mm. [p. 204.
caporiaccoi, Net.,

401. *Bembidion niloticum*, Dej.

Bembidium niloticum Dejean *, Spec. Gen. Col. v, 1831, p. 73; Bates, Trans. Ent. Soc. Lond. 1873, p. 301; Harold, Deutsch. Ent. Zeitschr. 1877, p. 342; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472; id., Rec. Ind. Mus. xviii, 1919, p. 100; id., Ent. Month. Mag. 1921, p. 249; id., in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 18.

Bembidium hamatum Kolenati, Mel. Ent. i, 1845, p. 75.

Bembidium batesi Putzeys *, Compt. rend. Soc. Ent. Belg. 1875, p. 52; Bates, Trans. Ent. Soc. Lond. 1876, p. 5; id., Trans. Ent. Soc. Lond. 1883, p. 269.

Bembidion niloticum Netolitzky, Ent. Blätt. 1914, p. 167; Müller, Kol. Rundsch. 1918, p. 61; Netolitzky, Wien. Ent. Zeit. 1931, p. 174, f. 1; Alluaud, Afra 7, 1933, p. 3.

Bembidion niloticum s. *Batesi* Jedlička, Acta Soc. ent. Čech. xxx 1933, pp. 3 and 5.

Colour piceous, moderately shiny; upper surface bronze, sometimes with a greenish tint; palpi (except apex of pen-

ultimate joint), joints 1 to 4 of antennæ, and legs more or less ferruginous (femora sometimes piceous); apex of elytra, and an apical lateral spot on each, the spots often merging to form a crescent, flavous.

Head rather convex, with deep, nearly straight furrows, converging strongly in front, running on each side from the back of the eye to the front margin of the clypeus; eyes prominent; antennæ stout, reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, about a

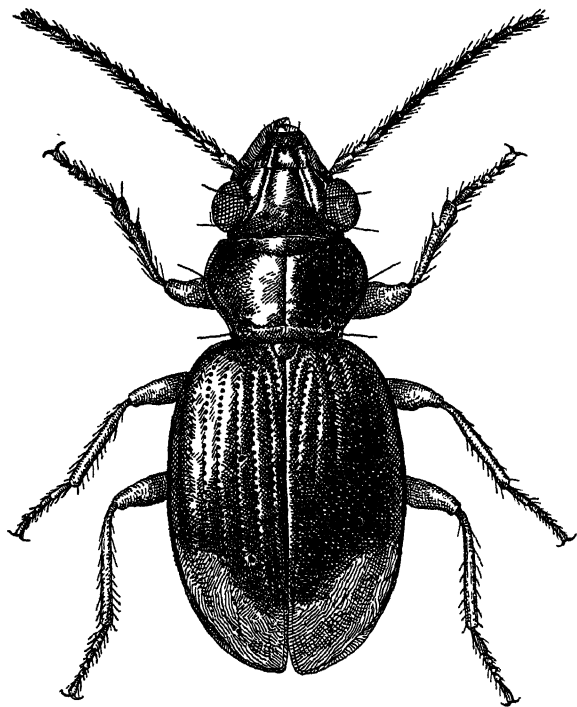


Fig. 34.—*Bembidion niloticum* Dejean.

sixth wider than head, nearly a half wider than long, base about equal to apex, its sides oblique and slightly emarginate, sides strongly rounded and sinuate just before the hind angles, which form on each side a sharp rectangular tooth, with a fine carina; median line fine, front transverse impression shallow, hind one a little deeper, basal foveæ moderately deep and subrugose, adjoining the angles, basal area with some faint, minute puncturation. *Elytra* convex, ovate, but with strongly marked shoulders, a half wider than prothorax, two-fifths longer than wide, border extending inwards a little

beyond the base of stria 5, a clavicular fold present; striae moderately impressed and clearly punctate, the outer ones shallower, 1 deep throughout, the rest much fainter behind, though visible to apex, scutellary striole short, apical stria poorly developed; intervals flat, dorsal pores on the interval. Microsculpture isodiametric throughout and very distinct.

Length, 3.5–3.75 mm.

Distribution. PUNJAB: Kalka (*G. Babault*); Upper Jhelum, Daphar Plantation (*H. G. Champion*); Lyallpur (*K. N. Trehan*); Lahore, Shahdara Plantation (*B. M. Bhatia*). UNITED PROVINCES: Almora and Ranikhet (*H. G. Champion*); Mussooree, Dhobi Ghat (*M. Bose*). ASSAM: Naga Hills (*S. N. Chatterjee*). BENGAL: Calcutta, Dhappa. PERSIA: Seistan, Nasratabad (*S. W. Kemp*). ARABIA. EGYPT IRAK. TURKESTAN. CHINA. JAPAN. INDO-CHINA.

Type in Mr. René Oberthür's collection; that of *hamatum* in the Petrograd Academy of Science; that of *batesi* in the Brussels Museum. In my Catalogue of Indian Carabidæ the letter E*, indicating the whereabouts of the type of *batesi*, has by inadvertence been placed against *hamatum*.

The species, which is very widely spread, is a somewhat variable one. Harold gives Ceylon as a locality, but he thought the species identical with *sobrinum*.

402. *Bembidion sobrinum*, Boh.

Bembidium sobrinum Boheman, Ins. Caffr. i, 1848, p. 232; Péringuey, Descr. Cat. S. Afr. Ins. ii, Trans. S. Afr. Phil. Soc. vii, 1896, pp. 591–2; id., Ann. S. Afr. Mus. xxiii, 1926, p. 647.

Bembidium opulentum Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 420; Harold, Deutsch. Ent. Zeitschr. 1877, p. 341; Bates, Trans. Ent. Soc. Lond. 1883, p. 269; Netolitzky, Ent. Blätt. 1914, p. 167; Andrewes, Ent. Month. Mag. 1921, p. 249.

Bembidium europs Bates *, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 156; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Bembidion opulentum Andrewes, Ann. Mag. Nat. Hist. (9) xix, 1927, p. 104.

Bembidion sobrinum Netolitzky, Wien. Ent. Zeit. 1931, pp. 176–8.

Colour black, upper surface bronze, rather dull; palpi (except apex of penultimate joint), the greater part of joints 1 to 4 of antennæ, legs, apex of elytra, and a lateral apical spot on each side, flavous. The colour at apex and the two spots generally unite to form more or less of a crescent.

Head with rather shallow, nearly straight furrows, converging strongly in front, running on each side from the back of the eye to the front margin of the clypeus, the space between them nearly flat; eyes prominent; antennæ stout, reaching basal fourth of elytra; surface impunctate. *Prothorax* convex, cordate, a sixth wider than head, a half wider than long, base somewhat arcuate, its sides very oblique, slightly narrower

than apex, sides strongly rounded in front and sinuate just before the hind angles, which form on each side a sharp rectangular tooth, with a slight carina; median line very fine, both transverse impressions rather shallow and very vaguely punctate, basal foveæ small but deep, adjoining the angles. *Elytra* convex, ovate, with well marked shoulders, a third wider than prothorax, rather more than a half longer than wide, border extending inwards rather beyond the base of stria 5, where it terminates in a small tooth, a clavicular fold present; striæ rather lightly impressed, finely but very clearly punctate, hardly shallower at sides, faint behind, but visible practically to apex, 1 no deeper than the rest on disk, but deep near apex, scutellary striole fairly long, apical stria very slight, though present; intervals nearly flat, dorsal pores on the interval, surface somewhat depressed round the front one. Microsculpture isodiametric throughout, the meshes finer than in *niloticum*.

Length, 3.5-4.5 mm.

Distribution. INDIA, widely spread throughout the plains, but not extending beyond the foot-hills of the Himalayas. CEYLON. BURMA: Thayetmyo. SIAM. CAMBODIA. JAVA. SOUTH and EAST AFRICA.

Type in the Stockholm Museum; that of *opulentum* in the Berlin Zoological Museum; that of *europæ* in the British Museum.

B. luzonicum Netolitzky (Wien. Ent. Zeit. 1931, p. 177) from the Philippine Is., *B. riverinæ* Sloane (Proc. Linn. Soc. N.S.W. 1894 (1895), p. 405) from Australia, and probably also *B. hamiferum* Fauvel (Rev. d'Ent. 1882, p. 231) from New Caledonia are only slightly differentiated forms of this widely spread species. Péringuey in his S. African Catalogue writes: "I have seen many examples tessellate with pale yellow as much as in *B. variegatum*"; I rather suspect this statement, but in any case it does not apply to Indian specimens.

I have commented on Harold's reference under *niloticum*.

403. *Bembidion trimaculatum*, Andr.

Bembidion trimaculatum Andrewes, Eos iii, 1927, p. 68, f. 3.

Colour black, shiny: head and prothorax dark æneous; joints 2 to 4 of antennæ brown; palpi, legs (except apical half of femora), and about half the elytra pale ferruginous. The dark markings on the elytra comprise the suture, a small patch near middle of base, shoulders and margin to a fourth from apex, and three elongate oval patches on apical half, leaving intervals 4 and 5 pale.

Head with deep furrows, converging in front and extending on to clypeus, leaving a convex area between them, which is

faintly transversely striate; eyes large and prominent; antennæ stout, reaching basal third of elytra; surface impunctate. *Prothorax* convex, cordate, barely wider than head, but fully a third wider than long, base slightly narrower than apex, its sides very oblique, sides strongly rounded, sinuate close to the hind angles, which are sharp, though obtuse, project a little outwards, and are provided with a well marked carina; median line very fine, a few punctures along the shallow front transverse impression, a deep transverse furrow in front of base, along which are some large though vague punctures, basal foveæ deep, surface smooth, with a few transverse striæ just before base. *Elytra* convex, ovate, with very square shoulders, not quite a half wider than prothorax, exactly a

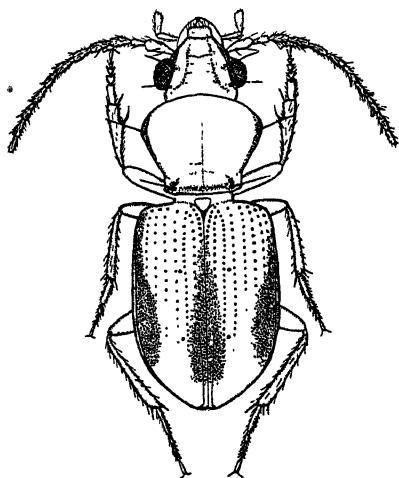


Fig. 35.—*Bembidion trimaculatum* Andrewes.

half longer than wide, side border reaching stria 5, a clavicular fold present; striæ very clearly punctate, inner ones only impressed, 1 entire, the others evanescent at apex and gradually shortening outwards, 7 barely reaching a third from base, scutellary striae short, apical stria obsolete, its pore isolated; intervals nearly flat, dorsal pores on the interval. No appreciable microsculpture. Metasternal process bordered.

Length, 3–3·4 mm.

Distribution. PUNJAB: Upper Jhelum, Daphar Plantation (H. G. Champion); Lyallpur (K. N. Trehan). UNITED PROVINCES: Dehra Dun (M. Cameron).

Type in the British Museum.

Quite unlike any other Indian species.

404. *Bembidion caporiaccoi*, *Net.*

Bembidion caporiaccoi Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 99.

Colour black, upper surface dark metallic green, very shiny, joint 1 of the antennæ sometimes reddish, tibiæ and tarsi more or less ferruginous.

Head with fairly deep furrows, converging a little forwards and continued on to the clypeus; eyes large and prominent; antennæ moniliform, extending very little beyond base of prothorax; surface impunctate. *Prothorax* convex, cordate, slightly wider than head and a third wider than long, base narrower than apex, truncate at middle, with a well marked convex border, within which is a deep punctate marginal channel, the sides of base oblique and emarginate, so that the sharp rectangular hind angles, which are furnished each with a slight carina, are pushed forward well in front of the median part, sides narrowly bordered and strongly rounded; median line fine, basal foveæ small, deep, and rounded, only separated on each side from the angle by the carina, surface smooth, with a little faint cross-striation. *Elytra* convex, subquadrate, with prominent shoulders, a half wider than prothorax, and also a half longer than wide, border nearly reaching stria 4; punctate-striate, stria 1 moderately deep throughout, 2 and 3 very lightly impressed, the other striæ represented by the punctures, which are distinct on the basal half but disappear behind, scutellary striae represented by a few punctures, apical stria obsolete, so that the pore is isolated; intervals flat, dorsal pores inconspicuous, near stria 3, surface smooth, sometimes a little depressed on disk behind base. No microsculpture. Metasternal process narrowly bordered.

Length, 3 mm.

Distribution. KASHMIR: Sind Valley, Kangan, 6500 feet; Indus Valley, Olthingthang, 8600 feet; Shigar Valley, Shigar, Alchori, and Kushumul, all about 7500 feet; Braldo Valley, Askole, and Biaho, about 10,000 feet (all *L. Caporiacco*).

Type in the Milan Civic Museum.

The species belongs to the subgenus *Bembidion*, s.s., and, except in the absence of spots, differs little from the palæarctic *B. quadrimaculatum* L.

Genus **TIRUKA**, nov.

TYPE, *Bembidion bolivari* Andr.

Head with the eyes very small and flat, with large, rounded facets, which are not contiguous, genæ conspicuous, extending outwards as far as eye, front supraorbital pore at mid-eye level, hind one far behind and distant from eye, maxillæ long and slender, extending beyond the mandibles, which are also

long and slender, maxillary palpi with the antepenultimate joint very long and thin, a third longer than joint 1 of the antennæ, which are long and rather thick, with joint 2 very nearly as long as 3, its upper two-thirds moderately pubescent. The other characters as in *Bembidion*.

The uniform pale colour suggests at first sight an *Anophthalmus*, while the small, flat eyes and the unusual length of the maxillæ and antepenultimate joint of the maxillary palpi differentiate it from any species of *Bembidion* known to me. The position of the hind supraorbital pore is very much as in *Lymnæum*, though, owing to the reduction in the size of the eye, the distance between it and the eye is much greater. Owing to the extreme fragility of the unique specimen I have, unfortunately, been unable to carry out any dissections.

405. *Tiruka bolivari*, Andr.

Bembidion bolivari Andrewes, Eos iii, 1927, p. 67, f. 2.

Colour uniformly ferruginous, elytra very faintly iridescent.

Head convex, with fairly deep, parallel furrows; antennæ reaching basal third of elytra; surface impunctate. Prothorax convex, cordate, two-fifths wider than head, a sixth

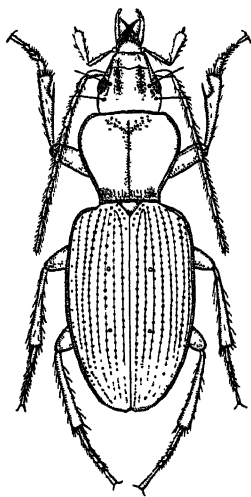


Fig. 36.—*Tiruka bolivari* Andrewes.

wider than long, base and apex about equal, the former produced at middle, sides rounded, with a narrow reflexed border, sinuate rather near hind angles, which are right and very sharp, without carina; median line and hind transverse depression fairly deep, the former widening a little near base,

the foveæ small but deep, surface smooth, a few vague punctures along front margin, basal area with some coarse punctures and a few longitudinal striæ. *Elytra* depressed, elongate-oval, not quite a half wider than prothorax, three-fourths longer than wide, border not quite reaching stria 5; striæ moderately impressed, finely and a little indistinctly punctate, 1 deep throughout, outer striæ shallower, 2 to 7 evanescent near apex, scutellary stria short, apical stria not very clearly impressed, its pore rather large; intervals slightly convex, dorsal pores on the interval. Microsculpture of the elytra formed by transverse or slightly oblique lines, just visible under the microscope, the prothorax with similar, but rather coarser lines, forming very wide meshes, the head with isodiametric meshes. Metasternal process bordered. Protarsi ♂ with two dilated joints, each produced inwardly into a fairly sharp tooth.

Length, 5.5 mm.

Distribution. SIKKIM.

Type in my collection. This is a unique ♂ example, received with other specimens many years ago by the Madrid Museum from Mr. R. Oberthür. These were said to come from "Padantsin," a place I cannot find on any map; probably the locality is either Maria Basti or Gnatong.

Genus TACHYS.

Tachys Stephens, Ill. Brit. Ent. Mandib. ii, 1828, pp. 2 and 4; Dejean, Spec. Gen. v, 1831, p. 33; Jacquelin-Duval, Ann. Soc. Ent. Fr. 1852, p. 189; Motschulsky, Études Ent. xi, 1862, p. 27; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 737; Bates, Biol. Centr.-Amer. Ins. Col. i, (1), 1882, p. 138; Reitter, Wien. Ent. Zeit. 1884, p. 116; Netolitzky, Ent. Blätt. 1914, p. 173; Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 18; id., Revision of the Oriental Species of the Genus *Tachys*, Ann. Mus. Civ. Gen. li, 1925, p. 327.

Tachyta Kirby, Faun. Bor. Amer. iv, 1837, p. 56; Schaum, Berl. Ent. Zeitschr. 1863, p. 88.

Elaphropus Motschulsky, Bull. Mosc. 1839, i, p. 73; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Pericompsus Leconte, Ann. Lyc. N.Y. v, 1852, p. 191.

Tachylopha, *Tachyura*, *Tachymenis* (= *Tachyta*), *Polyderis* Motschulsky, Études Ent. xi, 1862, p. 27.

Barytachys Chaudoir, Rev. Mag. Zool. 1868, p. 213; Bates, Biol. Centr.-Amer. Ins. Col. i, (1), 1882, p. 140; Andrewes, Revision, p. 328.

Porotachys Netolitzky, Ent. Blätt. 1914, p. 174.

Sphærotachys Müller, Stud. Ent. i, 1926, pt. 2, p. 95.

Nototachys Alluaud, Afra 2, 1930, p. 14.

Trepanotachys Alluaud, Afra 7, 1933, pp. 3, 4, and 17.

TYPE, *Tachys scutellaris* Steph. (Europe.)

Colour very variable, but usually either ferruginous, with or without dark markings, or dark, with or without pale spots

on the elytra. Body glabrous, rarely pubescent, a micro-sculpture usually present on the elytra, though sometimes wanting.

Head with eyes of variable form, adjoining the buccal fissure, two supra-orbital setæ present, the frontal furrows of varying depth, usually single, but sometimes duplicated, or even triplicated, parallel or diverging a little behind, usually confined to the front, but in *fumigatus* very deep, converging and nearly meeting on the front of the clypeus; antennæ of varying length, sometimes filiform, but more often submoniliform, fully pubescent from joint 4, but joints 2 and 3 bear a few setæ; labrum transverse, truncate, or slightly emarginate, sextose; clypeus transverse, bisetose; mandibles short but fairly stout; mentum with a small tooth in the emargination, and in some species, just below the tooth, two large forameniform pores, one on each side; ligula truncate, bisetose, paraglossæ narrow, extending beyond the ligula; maxillæ curved and slightly hooked at apex, a row of fine bristles along the inner margin, the outer lobe two-jointed; palpi with the penultimate joint pubescent and strongly dilated, the apical joint very small, subulate; surface nearly always impunctate.

Prothorax usually convex and more or less cordate, base often produced a little at middle, its sides horizontal or sometimes oblique; sides bisetose; hind angles generally sharply rectangular and often with a small longitudinal carina on each side adjoining them, in *comptus* projecting outwards as a sharp tooth; median line and front transverse impression generally very little developed, but, except in the *ovatus*-group, the hind transverse impression is present, with a sulcus at the bottom of it. This sulcus is usually deep and often crenulate, frequently interrupted at middle, with a pore at the centre of the interruption (two pores in the *haliploides*-group); as a rule it runs close to the base at sides and thence obliquely forward on each side to the centre, thus forming a border of variable depth to the median part of the base. This character is best seen when the specimen is viewed from in front, as it often happens that the sulcus is interrupted while the transverse impression is continuous.

Elytra with the border generally rounded at shoulder, but sometimes angulate, the basal part often directed slightly backwards and terminating opposite stria 4; in most groups the border is smooth, but in the *fasciatus*-group and in some others it is minutely setulose and occasionally dentate; the setæ are very fugitive, but, if the insect is examined sideways under the microscope, the minute pores from which they spring are, when present, clearly visible. As in *Bembidion*, a "clavicular fold" is sometimes, though rarely, present. The striation is extremely variable, and any number of striae may be present,

from 1 up to 9, but the scutellary striae are wanting; the first to disappear is the seventh, then the sixth, and so on inwards to the first stria, which is usually entire, whereas the other striae are nearly always shortened at both ends. The eighth stria is usually deep and entire, when it isolates a convex ninth interval, but in some groups it is interrupted at middle, sometimes disappearing also in front, and occasionally altogether; where not impressed it is represented by an irregular series of few but large pores; at about three-fifths from base it approaches stria 9, and at this point the two striae are only separated by the width of a setiferous pore. The striae may be smooth, but are often finely crenulate, sometimes punctate, or even formed entirely by punctures. A recurved stria, which joins stria 1 at apex, is nearly always present, and varies a good deal in shape, length, and position; as a rule its front end, which is sometimes hooked, is near the middle of the elytron, but in the *umbrosus*-group it runs very near the margin, and exceptionally, as in *acaroides* and most of the *truncatus*-group, it may disappear altogether.

The setiferous dorsal pores on the elytra are of high taxonomic value. Occasionally the surface is covered with numerous pores, or there may be two rows of them (*elegans*), or they may occupy unusual positions, with or without accessory ones (*comptus*-group). Normally, however, there are two dorsal pores, placed at about a third and two-thirds from base on the inner margin of stria 3, and an additional pore on the inner margin of the stria, about half-way along it. In the *fasciatus*-group the front pore may be displaced outwards as far as interval 6, the hind pore being then placed much further back, generally within or just in front of the hook of the stria, while the pore adjoining the stria is far back near apex. In the *umbrosus*-group these pores occupy a variety of different positions, and in the *haliploides*-group only one very minute pore is present on the site of stria 3 and at about middle.

The underside is generally glabrous and impunctate, but in the *fasciatus*-group there are sometimes traces of pubescence on the last ventral segment, and in the *truncatus*-group the whole of the underside is minutely but always sparsely pubescent. The prosternum is generally more or less longitudinally sulcate. The metasternal process between the mesocoxæ is usually, but not always, bordered; sometimes the border is fine (*fasciatus*-group); sometimes there is a deep arcuate groove, convex forwards, which leaves the process very widely bordered (common in the *politus*-group); occasionally there is a straight transverse groove a little further back, tangential to the coxal cavities (*fumigatus*). On the ventral segments there is a single seta on each side of the median line; on the last segment there is also one on each side in the ♂,

on or near the margin, two on each side in the ♀, generally all in line, but in the *fasciatus*-group the inner pair is more or less removed from the margin. The legs are rather slender and usually pale in colour, the protibiae obliquely truncate on the outer side at apex. In the ♂ protarsi the two basal joints may be distinctly dilated and inwardly produced (*fasciatus*-group), or slightly dilated (some of the *politus*-group), or only the basal joint may be dilated (*vilis*), or none at all. As a rule the first joint of the metatarsi is nearly or quite as long as the next three taken together. The claws are nearly always smooth, but minutely denticulate in the *umbrosus*- and *haliploides*-groups.

As in *Bembidion*, the microsculpture of the upper surface is frequently of use in the discrimination of the numerous species, and the various forms which it assumes are similar to those mentioned under that genus. It is not by any means uniform on all parts of the body, or even on the same part, so that in the descriptions it has often been possible to indicate its character in general terms. In some species, especially in those of the *haliploides*-group, there is sometimes on the elytra the appearance of large pores on the upper side, without any break in the surface, and the course of the striæ may sometimes be traced by their means. To a certain extent corresponding depressions may be seen on the underside of the elytra, but the source of this appearance seems to be chiefly intradermal, and they are referred to here as "underlying" pores.

Range. World-wide.

Except in the case of the palæarctic species *T. nanus* Gyllh., practically nothing is known of the early stages in the life-history of these insects. Like the species of *Bembidion*, those of this genus usually frequent the vicinity of water, but some are found in moist places under refuse, dead leaves, etc.; a few (*umbrosus*-group) live under bark, and one or two members of the *haliploides*-group have been found in fungi. Little can be said at present regarding the area of distribution of the different species, though in certain instances, e. g., *fasciatus*, *latus*, and *fumigatus*, it is known to be a wide one; many, however, have hitherto been met with in one locality only, and sometimes are represented by a single specimen.

In my 'Revision of the Oriental Species of the Genus *Tachys*,' published in 1925, all the then known species from South-East Asia (including India) were tabulated, and the scheme of classification then adopted has, with some modification, been introduced here. The extra-Indian species have, of course, been excluded, but those found in the Indian region are distributed among the same fourteen groups; as a matter of convenience a few changes have been made in the group-names, for it seemed undesirable in this connexion to make use of the

names of species not found in the region, and, wherever necessary, another name has been substituted, though, to obviate any confusion, the Revision-name has in such cases been inserted in parentheses. The groups are not all natural ones, but, as in the genus *Bembidion*, it seems desirable for the present to restrict their number rather than attempt a more strictly phylogenetic classification.

In the keys to the various groups occasional use has been made of the pale spots with which the elytra are frequently decorated. It happens, however, exceptionally, that in a normally spotted form the spots become obsolete or disappear, and, conversely, an apical spot may sometimes be seen in an example of an unspotted species. A few of such cases have been dealt with here, but not all, so that, when the keys are consulted, this fact should be borne in mind.

Key to the Groups of Tachys.

- 1 (8) Mentum with two circular pores (except *truncatus*).
- 2 (3) Elytra convex, short-ovate, only a fourth wider than long, border practically smooth, antennæ with joints 2 and 3 of equal length (*recurvicollis*-group of the Revision)..... *luxus*-group, p. 211.
- 3 (2) Elytra flat or moderately convex, rarely less than a half longer than wide, border of elytra setulose, antennæ with joint 2 longer than 3.
- 4 (7) Stria 8 impressed on apical half of elytron, apical stria present on middle of elytron. Length 1.8-4 mm.
- 5 (6) Elytra ferruginous or piceous, rarely spotted, depressed, nearly always a half longer than wide (*triangularis*-group of the Revision)..... *fasciatus*-group, p. 213.
- 6 (5) Elytra black, with pale spots, iridescent, moderately convex, about a half longer than wide [p. 228.
- 7 (4) Stria 8 wanting, apical stria wanting or rudimentary (except *ochrias*). Length 1-1.8 mm. *quadrillum*-group,
- 8 (1) Mentum without circular pores. [p. 230.
- 9 (26) Apical stria on middle of elytron, or obsolete. *truncatus*-group,
- 10 (25) Elytra with two dorsal pores (exceptionally more), basal sulcus of prothorax not having two pores at middle, claws not denticulate.
- 11 (24) Stria 8, at least on apical half, and apical stria both present.
- 12 (23) Frontal furrows not exceptionally deep, not converging in front, and nearly meeting on front margin of clypeus, labrum truncate or moderately emarginate.

- 13 (16) Stria 8 interrupted at middle, or, if entire, only lightly impressed on basal half.
- 14 (15) Stria 8 completely interrupted at middle, and represented by large pores in front [p. 233.
expansicollis-group,
- 15 (14) Stria 8 subinterrupted at middle, or lightly and irregularly impressed on basal half (*exaratus*-group of the Revision) [p. 238.
rhombophorus-group,
- 16 (13) Stria 8 entire and at least moderately deep throughout, form generally convex, never depressed.
- 17 (18) Elytra fully striate, the striae punctate or crenulate, form moderately convex [p. 239.
notaphoides-group,
- 18 (17) Elytra not fully striate (except *klugi*).
- 19 (22) Prothorax with a transverse basal sulcus, shoulders of elytra smooth and rounded.
- 20 (21) Hind angles of prothorax adjoining or close to base of elytra *politus*-group, p. 245.
- 21 (20) Hind angles of prothorax projecting laterally on each side as an acute tooth at some distance from the part of the base in contact with the elytra *comptus*-group, p. 282.
- 22 (19) Prothorax without a transverse basal sulcus, shoulders of elytra dentate.. *ovatus*-group, p. 284.
- 23 (12) Frontal furrows long and deep, converging in front and nearly meeting on the frontal margin of the clypeus, labrum semicircularly emarginate . [p. 287.
fumigatus-group,
- 24 (11) Stria 8 and apical striae obsolete, border of elytra setulose and dentate. Length 1.5 mm. [p. 289.
acaroides-group,
- 25 (10) Elytra with only one dorsal pore, basal sulcus of prothorax with two pores at middle, claws denticulate, form very short and convex. Length 1.5-2.5 mm. [p. 291.
haliploides-group,
- 26 (9) Apical striae close to margin, border of elytra setulose, claws denticulate, form depressed or moderately convex (*nanus*-group of the Revision) . [p. 299.
umbrosus-group,

Key to the luxus-group.

406. *Tachys luxus*, Andr.

Tachys luxus Andrewes, Revision, 1925, pp. 338 and 339.

Colour chestnut-brown, very shiny, elytra a little lighter towards apex, antennae and legs ferruginous.

Head rather wide, with deep single furrows, curving round behind eyes, which are moderately prominent; antennae slender. *Prothorax* moderately convex, two-thirds wider than long, base much wider than apex, sides with a strongly reflexed border, explanate behind, rounded in front, and sinuate

rather near the hind angles, which are right, sharp, and a little reflexed, without carina; median line and front transverse impression clearly marked, basal sulcus deep, punctate, uninterrupted and without central pore, the foveæ inside the hind angles, wide and deep. *Elytra* ovate, moderately convex, with strongly rounded sides, only a fourth longer than wide, border practically smooth, though one or two minute setæ are visible, rounded at shoulder and extending inwards to stria 4; four vaguely crenulate dorsal striæ, 1 entire and

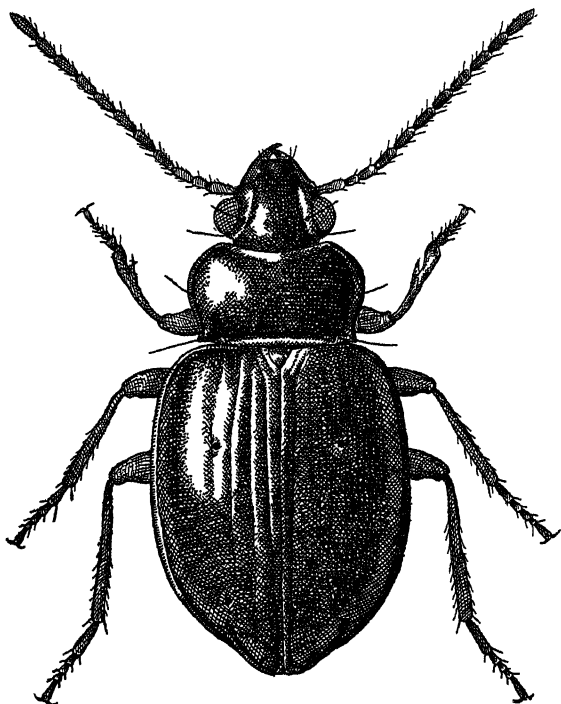


Fig. 37.—*Tachys luvius* Andrewes.

fairly deep, 2 shallower, 3 and 4 very lightly impressed, 5 visible close to base, 2 to 4 vaguely reaching base, shortened behind, 8 deep on apical half, represented by pores in front, striole rather long, not far from margin, but curving strongly inwards in front, the pore far back near apex; dorsal pores on inner margin of stria 4, at basal fourth and just in front of the striole. The microsculpture consists of fine transverse lines, just visible on the elytra, more distinct on the prothorax, reticulate, with wide meshes, on the head. Prosternum slightly

sulcate; metasternal process finely bordered. Protarsi ♂ with two dilated joints.

Length, 2.8 mm.

Distribution. BURMA: Karen Mountains, at about 4500 feet (*L. Fea*); Tenasserim (*J. W. Helfer*). TONG-KING.

Type in the Genoa Civic Museum.

The species is allied to the Japanese *T. recurvicollis* Andr., and, so far as is known at present, has no near Indian allies.

Key to the fasciatus-group.

- 1 (4) Front dorsal pore on or immediately adjoining stria 3; border of elytra dentate, angulate at shoulder. Length 2 mm.
- 2 (3) Elytra fully striate, the outer striæ lightly impressed, the striæ punctate; border conspicuously dentate; hind dorsal pore distant from apical striae *dentatus*, Andr., [p. 214.]
- 3 (2) Elytra with striæ 1 and 2 lightly impressed and vaguely crenulate, the rest obsolete though often visible; border very finely dentate; hind dorsal pore just in front of the apical striae *impressipennis*, Motch., [p. 215.]
- 4 (1) Front dorsal pore placed nearer margin than stria 3.
- 5 (16) Front dorsal pore on or adjoining stria 4 (if on interval 4, then nearer to stria 4 than stria 3).
- 6 (15) Antennæ long, filiform; colour of upper surface mainly ferruginous, or, if darker, somewhat iridescent. Length 2.5-3 mm.
- 7 (14) Base of prothorax wider than apex, the hind angles at least slightly obtuse; elytra with some dark markings; a microsculpture present.
- 8 (13) Prothorax sinuate on each side behind; elytra ferruginous, with a dark band across middle.
- 9 (10) Elytra with shallow striæ, obsolete at sides; colour pale ferruginous, with a faint dark transverse band. Length 2.75 mm. *transumbratus*, Bates, [p. 216.]
- 10 (9) Elytra with fairly deep striæ; colour dark ferruginous, with a black band across middle.
- 11 (12) Elytra less than a half longer than wide. Length 2.75 mm. *fasciatus*, Motch., [p. 217.]
- 12 (11) Elytra nearly two-thirds longer than wide. Length 3 mm. *fasciatus* var. *incertus*, [Andr., p. 219.]
- 13 (8) Prothorax not sinuate on each side behind; elytra castaneous, iridescent, with a dark cloud on disk. Length 2.75 mm. *opalescens*, Andr., [p. 219.]

- 14 (7) Prothorax equally contracted at extremities, the hind angles right and sharp; elytra ferruginous, with three deep striae; no microsculpture present. Length 2.5 mm. [p. 220.
impressus, Motch.,
- 15 (6) Antennæ short, submoniliform; colour of upper surface piceous. Length 2 mm. *vilis*, Andr., p. 221.
- 16 (5) Front dorsal pore on interval 6.
- 17 (30) Microsculpture of the head between the eyes formed by isodiametric or moderately wide meshes.
- 18 (23) Elytra with the four inner striae at least moderately impressed.
- 19 (20) Elytra only vaguely clouded, the striae hardly perceptibly crenulate. Length 2.75-3 mm. *euryodes*, Bates, p. 222.
- 20 (19) Elytra with a dark cloud, the inner striae evidently punctate or crenulate. Length 3.25-4 mm.
- 21 (22) Prothorax about a half wider than long; stria 2 not interrupted before apex. *sericeus*, Motch., p. 223.
- 22 (21) Prothorax about a third wider than long; stria 2 interrupted for some distance before apex *prolixus*, Bates, p. 224.
- 23 (18) Elytra with not more than three clearly impressed striae.
- 24 (25) Elytra flavous, with a deep piceous band. Length 2.4 mm. [p. 224.
gracchus, sp. nov.,
- 25 (24) Elytra ferruginous, more or less clouded. Length 3-3.4 mm.
- 26 (27) Elytra more than a half longer than wide, the border and suture more or less brown; striae 1 to 3 moderately impressed, the other striae mostly visible *cardoni*, Andr., p. 225.
- 27 (26) Elytra about a half longer than wide; stria 1, and sometimes 2, moderately impressed, the rest as a rule obsolete.
- 28 (29) Elytra deeply clouded *dorsalis*, Motch., p. 226.
- 29 (28) Elytra vaguely clouded *dorsalis* var. *obsolescens*,
[Bates, p. 226.
- 30 (17) Microsculpture of the head between the eyes formed by fine transverse lines; elytra ferruginous, with a dark cloud on disk. Length 3-3.25 mm. [p. 227.
tropicus, Nietn.,

407. *Tachys dentatus*, Andr.

Tachys dentatus Andrewes, Revision, 1925, p. 343, t. 3, f. 1.

Colour ferruginous, elytra sometimes with a faint dark band behind middle.

Head wide, with fairly deep, wide furrows, very short and not diverging behind, but extending on to clypeus in front; eyes small and flat; submentum fringed with setæ, which stretch forward over the mentum; antennæ short and submoniliform, joint 3 not much shorter than 2. Prothorax

cordate, a half wider than long, sides strongly sinuate behind, angles a little obtuse and rounded, with a rudimentary carina; basal sulcus indistinctly crenulate, interrupted at middle by a longitudinal ridge, the median line sometimes continued along the ridge through the interruption, a few minute setæ visible on the border near front angles. *Elytra* slightly truncate at apex, border angulate at shoulder, evidently dentate and setulose, the teeth rather widely placed; fully striate, the striæ clearly punctate but shallow, especially at sides, and a little arcuate, 1 to 6 reaching, or nearly reaching, base, 7 stopping short of base, 8 deep behind, represented by some large punctures in front and a few small ones along middle, 5 and 6 terminating a long way from apex, 7 curving round behind them, parallel with 8, apical striole short, curving inwards and ending a little nearer suture than margin, joining (or nearly so) the extremities of striæ 3, 4, and 7, the pore rather behind middle; dorsal pores on inner side of stria 3, at about a third and two-thirds. No obvious microsculpture, the head being particularly smooth and shiny. Body beneath minutely and sparsely setulose.

Length, 2 mm.

Distribution. TENASSERIM (*J. W. Helfer*). MALAY STATES. SIAM. CAMBODIA. COCHIN-CHINA. JAVA. SUMATRA. PRINCES ISLAND.

Type in my collection.

408. *Tachys impressipennis*, *Motch.*

Tachys impressipennis Motchulsky *, Études Ent. viii, 1859, p. 39; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 745; Andrewes, Revision, 1925, pp. 341 and 346, t. 3, ff. 2 and 13; id., Trans. Ent. Soc. Lond. 1928, p. 18; id., Résultats Scientifiques du Voyage aux Indes Orientales Néerlandaises de LL. AA. RR. le Prince et la Princesse Léopold de Belgique, Mém. Mus. Hist. Nat. Belg. (Hors Série), iv, 4, Carab. 1932, p. 8.

Tachys dohertyi Jordan *, Nov. Zool. i, 1894, p. 111.

Tachys sinuaticollis Sloane, Proc. Linn. Soc. N.S.W. 1903, p. 579; id., Proc. Linn. Soc. N.S.W. 1921, pp. 200 and 207.

Colour pale ferruginous, the disk of the elytra sometimes faintly clouded.

Head with short, shallow furrows; eyes flat; antennæ submoniliform. *Prothorax* cordate, a half wider than long, base with its sides oblique, hardly wider than apex, sides sinuate behind, the angles obtuse, somewhat reflexed and rounded; basal sulcus not crenulate, hardly interrupted, and without pore at middle. *Elytra* depressed, the border finely dentate and setulose, with the denticulations placed moderately close together, forming a very obtuse angle at shoulder, and thence directed a little backwards and inwards to a point well inside the hind angles of the prothorax; striæ 1 and 2

faintly impressed and equally faintly crenulate, the remainder obsolete, though here and there traceable, 8 very irregularly impressed on apical third, striole short, curving slightly inwards, its pore much nearer apex than front; dorsal pores small but clear, on or near the site of stria 3, at two-fifths from base and just in front of the striole. The fine transverse lines of the microsculpture are more clearly visible on the prothorax than on the elytra; on the head there is a faint transverse reticulation. The last ventral segment has traces of pubescence.

Length, 1.75–2 mm.

Distribution. BOMBAY: Belgaum (*H. E. Andrewes*). CENTRAL PROVINCES: Nagpur and Balaghat (*E. A. D'Abreu*). MADRAS: Chipurupalle (*R. S. Pattuck*); Barkuda Island in Lake Chilka (*N. Annandale*). CEYLON: Colombo; Peradeniya. BENGAL: Calcutta (*F. H. Gravely*); Diamond Harbour (*T. D. A. Cockerell*); Burdwan. BIHAR: Pusa. ASSAM: Mangaldai (*S. W. Kemp*). BURMA: Kawkaik (*F. H. Gravely*). PENANG. SIAM. CAMBODIA. TONG-KING. JAVA. SUMATRA. TIMOR. PHILIPPINE IS. AUSTRALIA.

Type in the Moscow University Museum; that of *dohertyi* in Mr. René Oberthür's collection; that of *sinuaticollis* in Mr. T. G. Sloane's collection.

409. *Tachys transumbratus*, *Bates*.

Tachys transumbratus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 291; Andrewes, Revision, 1925, pp. 342 and 350.

Colour pale ferruginous, the head and antennæ a little lighter, elytra with only a vague, fuscous, transverse band, which hardly reaches side margins.

Head with deep, single furrows, diverging behind; eyes moderately prominent; antennæ rather long, filiform, joint 2 much longer than 3. *Prothorax* cordate, nearly two-thirds wider than long, base with its sides oblique, a little wider than apex, sides gently sinuate behind, the angles somewhat obtuse and reflexed, without carina; median line clearly impressed, basal sulcus deep, finely crenulate, narrowly interrupted and with a pore at middle. *Elytra* depressed, not much more than a third longer than wide, border finely setulose, rounded at shoulder and extending inwards to base of stria 4; striæ subcrenulate, the inner ones moderately impressed, but hardly reaching base, 1 and 2 reaching apex, 2 very shallow behind, arcuate, and parallel with the striole, 3 to 5 progressively fainter, 6 and 7 barely traceable, 8 widely interrupted at middle, striole curved and slightly hooked, the pore far back near apex; front dorsal pore on inner side of stria 4

at about a third, hind one in the hook of the striae. Microsculpture of the elytra and prothorax hardly visible, that of the head distinct and formed by moderately transverse meshes. Protarsi ♂ with two dilated joints.

Length, 2.6–2.7 mm.

Distribution. BURMA: Senmigion (*L. Fea*); Moulmein (*Fieber*). CELEBES.

Type in the Genoa Civic Museum.

410. *Tachys fasciatus*, *Motch.*

Trechus fasciatus Motschulsky *, Bull. Mosc. 1851, ii, p. 506; Andrewes, Trans. Ent. Soc. Lond. 1922, p. 248; Jeannel, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 394.

Bembidium triangulare Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 422.

Tachys triangularis Schaum, Berl. Ent. Zeitschr. 1863, p. 91; Bates, Trans. Ent. Soc. Lond. 1873, p. 298; id., Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 151; id., Ann. Soc. Ent. France 1889, p. 274; Fauvel, Rev. d'Ent. 1903, p. 219; Sloane, Proc. Linn. Soc. N.S.W. 1920, p. 321; id., Proc. Linn. Soc. N.S.W. 1921, pp. 200 and 207; Andrewes, Revision, 1925, pp. 340 and 350, t. 3, ff. 3 and 14, t. 4, ff. 19, 22, 30, 34, 35, and 38.

Trechus atriceps W. Macleay, Trans. Ent. Soc. N.S.W. ii, 1871, p. 113.

Tachys trechiformis Jordan *, Nov. Zool. i, 1894, p. 111.

Tachys atriceps Sloane, Proc. Linn. Soc. N.S.W. 1896, pp. 359 and 372.

Tachys migrator Péringuey, Trans. S. Afr. Phil. Soc. vii, 1896, pp. 593 and 595; id., Ann. S. Afr. Mus. xxiii, 1926, pp. 648 and 650.

Tachys fasciatus Andrewes, Trans. Ent. Soc. Lond. 1928, p. 3; id., Tijdschr. Ent. lxxii, 1929, p. 306.

Colour ferruginous, slightly iridescent; head brown, elytra with a black transverse band (sometimes obsolete) across middle.

Head with single deep, wide, frontal furrows, front supra-orbital pore large; eyes prominent; antennæ long and filiform, joint 2 much longer than 3. *Prothorax* more or less cordate, a little more than a half wider than long, sides gently sinuate behind, base truncate, with its sides a little oblique, slightly wider than apex, hind angles obtuse and reflexed, without carina, the hind marginal pore large, on the angle, and producing a slight prominence; median line fine but clear, basal sulcus crenulate, not far removed from base, nearly obsolete at sides, uninterrupted, and with a pore at middle. *Elytra* flat, not quite a half longer than wide, the border minutely setulose, but hardly perceptibly dentate, rounded at shoulder and extending inwards to the base of stria 4; striae moderately impressed and finely crenulate, inner ones, especially 3 and 4, arcuate, 1 and 2 a little deeper than the others, 1 to 3 reaching base, 2 to 6 abbreviated behind,

though 2 often deepens again near apex, where it curves a little outwards, parallel with the striae, 7 hardly visible, 8 impressed close to apex and for a short distance obliquely at apical third, obsolete at middle, represented by pores in front, striae curved and not very long, rather hooked in front, ending on middle of elytron, the pore far back near apex; front dorsal pore on inner side of stria 4 at a third, hind one just inside the hook of the striae. Microsculpture of the

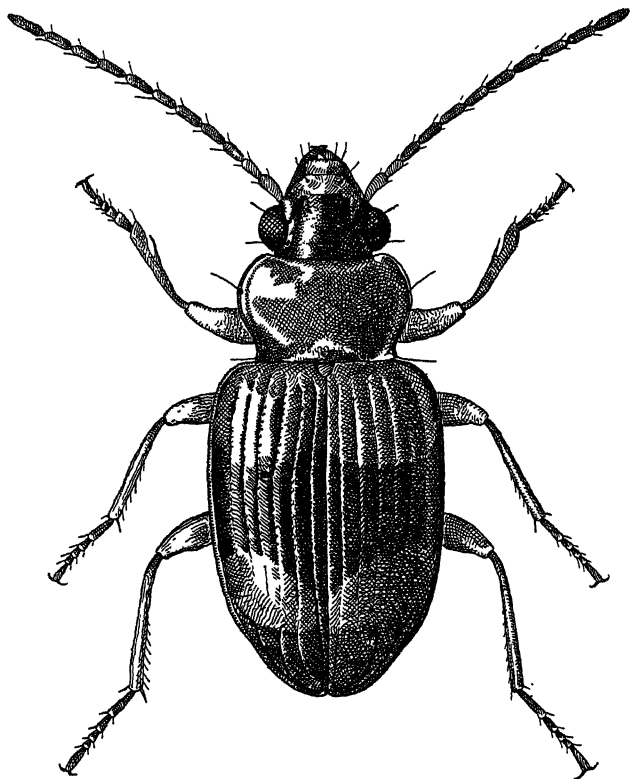


Fig. 38.—*Tachys fasciatus* Motschulsky.

prothorax and elytra inconspicuous, consisting of extremely fine transverse lines, that of head very clear, the meshes nearly isodiametric on vertex, but more or less transverse at sides and behind. Last ventral segment minutely setulose, though the setæ are extremely fugitive; the pores small, inner pair ♀ far removed from margin. Protarsi ♂ with two dilated joints.

Length, 2.5–2.75 mm.

Distribution. SOUTH-EAST ASIA. JAPAN. AUSTRALIA. EGYPT. SOUTH AFRICA. A fairly common species throughout India, Ceylon, and Burma.

Type in the Moscow University Museum; that of *triangularis* in the Berlin University Zoological Museum; that of *atriceps* in the Macleay Museum, Sydney; that of *trechiformis* in Mr. René Oberthür's collection; that of *migrator* in the Cape Town Museum.

410 a. *Tachys fasciatus* var. *incertus*, *Andr.*

Tachys tropicus Bates (not Nietn.) *, Ann. Mag. Nat. Hist. (5), xvii, 1886, p. 151.

Tachys triangularis Nietner, var. *incertus* Andrewes, Revision, 1925, pp. 342 and 352.

A little larger and darker than the type-form. Frontal furrows a little deeper. Prothorax with the sides more distinctly sinuate close to the hind angles, which are consequently less obtuse, the median line widening behind to form an elongate pore, and extending a little beyond the basal sulcus, which is further removed from the base, the area between the sulcus and the base having some slight longitudinal striation. Elytra nearly two-thirds longer than wide, the striation more conspicuous, the inner striæ deeper, 8 moderately deep on the whole of the apical third (as it sometimes is in the type form), the front dorsal pore very large, occupying the whole of interval 4. Microsculpture similar, except on the head, where the meshes of the reticulation are transverse.

Length, 3 mm.

Distribution. CEYLON (*G. Lewis*).

Type in the British Museum.

This form is so very near *fasciatus* that I hesitate to treat it as a different species. The two examples in the British Museum, both taken by Mr. Lewis in Ceylon, are the only ones I have seen.

411. *Tachys opalescens*, *Andr.*

Tachys opalescens Andrewes, Revision, 1925, pp. 342 and 352.

Colour dark castaneous, shiny; head brown, elytra with an indeterminate dark shade on disk and along margins; joints 1 and 2 of antennæ and legs flavous; surface shiny, iridescent, in certain lights opalescent.

Head with deep single furrows, diverging behind; eyes moderately prominent; antennæ filiform, joint 2 longer than 3. *Prothorax* cordate, a half wider than long, sides with a trace of sinuation behind, caused by the projection of the hind

lateral pore, base wider than apex, its sides very oblique, the hind angles obtuse and reflexed, without carina; basal sulcus deep, crenulate, uninterrupted, the pore at middle a little larger than the adjacent ones, a large rounded fovea on each side of base, the basal border with some longitudinal striation. *Elytra* moderately convex, not quite a half longer than wide, with square shoulders, border minutely setulose, rounded at shoulder and reaching the base of stria 4; striæ rather lightly impressed, crenulate and somewhat arcuate, 4 especially being deflected outwards near the front dorsal pore, hardly reaching base, 1 reaching apex, 2 to 4 progressively fainter and disappearing behind, the rest obsolete, 2 interrupted behind but reappearing as a shallow fovea close to apex, 8 deep behind, obsolete in the middle, represented by pores only in front, striae fairly long, curved and hooked in front, ending nearer the suture than the margin, its pore far back near apex; front dorsal pore fairly large, occupying the outer half of interval 4, the hind one in the hook of the striae. Microsculpture very fine, but just visible on the elytra and prothorax, distinct on the head, where there is a reticulation of rather wide meshes. Protarsi ♂ with two rather strongly dilated joints.

Length, 2.75 mm.

Distribution. CEYLON: Negombo (*W. Horn*).

Type in my collection; co-types in the Deutsches Entomologisches Museum and the Brussels Museum.

412. *Tachys impressus*, *Motch*.

Tachys impressus Motchulsky *, Bull. Mosc. 1851, ii, p. 508; Andrewes, Revision, 1925, pp. 342 and 353; id., Trans. Ent. Soc. Lond. 1928, p. 4.

Colour rather dark ferruginous, shiny; head brown, elytra only exceptionally with a vague cloud on disk.

Head with fairly deep furrows, which, though single, are bounded outwardly by a rounded ridge; eyes rather prominent; antennæ filiform, joint 2 much longer than 3. *Prothorax* cordate, a half wider than long, equally contracted at extremities, sides strongly rounded and sinuate some little way before base, the angles right, very sharp, and strongly reflexed; basal sulcus deep, punctate, very narrowly interrupted, and with a large pore at middle. *Elytra* rather flat, two-thirds longer than wide, border setulose, rounding shoulder very sharply, and reaching the base of stria 4; striæ very clearly punctate, 1 and 2 deep, hardly reaching base, though 1 reaches apex, 2 very faint behind, deflected outwards a little before apex, where it forms a shallow oblong fovea, 3 impressed in front only, where it curves inwards and reaches base, 4

rather faint, the remainder obsolete, 8 impressed over the apical third only, striole fairly long, curved and slightly hooked in front, the pore near apex; front dorsal pore at about a third, occupying the whole of interval 4, the hind one in the hook of the striole. Microsculpture inconspicuous throughout, though some vague transverse lines are just visible on the head. Protarsi ♂ with two moderately dilated joints.

Length, 2.5–2.7 mm.

Distribution. BENGAL: Calcutta. BURMA: Tenasserim (J. W. Helfer). SUMATRA.

Type in the Moscow University Museum; co-type in the Deutsches Entomologisches Museum.

The Burmese examples, which are in the Prague Museum, though labelled "Tenasserim," may actually have come from Bengal. The Sumatran example in the Brussels Museum differs a little from the typical form, but the differences seem slight, and are probably individual only.

413. *Tachys vilis*, Andr.

Tachys vilis Andrewes, Revision, 1925, pp. 342 and 354, t. 4, f. 39.

Colour piceous; prothorax above and beneath, and sides and apex of elytra dark ferruginous, joint 1 of antennæ and legs flavous.

Head with moderately deep single furrows, diverging behind; eyes rather flat; antennæ submoniliform, joint 2 much longer than 3. *Prothorax* cordate, less than a half wider than long, sides gently rounded in front and very slightly sinuate behind, base a little wider than apex, its sides strongly oblique, hind angles obtuse and somewhat reflexed, without carina; median line with the area surrounding it a little depressed, basal sulcus not very deep, vaguely crenulate, interrupted, but without any distinct pore at middle. *Elytra* depressed, with nearly parallel sides, more than a half longer than wide, border minutely setulose, rounded at and faintly sinuate behind shoulder, extending inwards to stria 4; four shallow dorsal striæ, hardly reaching base, 3 and 4 very lightly impressed, 5 to 7 obsolete, 1 reaching apex, but the rest disappearing behind, though 2 is deep quite close to apex, 8 fairly deep behind as far as the front end of striole, and again for a short distance just behind middle, otherwise obsolete, striole rather long, curved, and slightly hooked in front, the pore far back; front dorsal pore on interval 4 at about a third, hind one in the hook of the striole. The fine transverse lines of the microsculpture can be seen clearly on the elytra, and even more clearly on the prothorax; on the head there is a reticulation of moderately transverse meshes. Protarsi ♂ with only the basal joint dilated.

Length, 2 mm.

Distribution. KASHMIR (*H. T. Pease*).

Type in the Indian Museum, Calcutta; co-type in my collection.

The species is most nearly allied to the Japanese *pallescens* Bates, and, as in that species, the ♂ protarsi have only the basal joint dilated.

414. *Tachys euryodes*, *Bates*.

Tachys euryodes Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 289; Andrewes, Revision, 1925, pp. 343 and 360, t. 4, f. 27; id., Fauna of British India, Carabidæ, i, 1929, p. 16, f. 4 d.

Colour ferruginous, a vague cloud on the disk of the elytra, antennæ and legs rather lighter.

Head with wide, moderately deep furrows, diverging behind; eyes rather prominent; antennæ filiform, joint 2 nearly a half longer than 3. *Prothorax* cordate, a half wider than long, sides only appearing sinuate behind owing to the projection of the hind lateral pore, base wider than apex, its sides oblique quite close to the angles, which are obtuse and reflexed, without carina; median line and front transverse impression fine but clear, basal sulcus deep, finely crenulate, uninterrupted, and without pore at middle. *Elytra* moderately flat, more than a half longer than wide, border minutely setulose, rounded at shoulder and extending inwards a little beyond the base of stria 4; striæ 1 to 4 moderately deep, hardly perceptibly crenulate, practically reaching base, 5, 6, and especially 7, much fainter, 1 reaching apex, 2 faint behind, parallel with stria, deep close to apex, 3 to 7 all disappearing behind, 8 deep behind, widely interrupted at middle, stria slightly curved, hooked in front, on the middle of the elytron, the pore close to apex; front dorsal pore on interval 6 at about a fourth, hind one in the hook of the stria. Microsculpture consisting of fine transverse lines, a little less fine on the prothorax than on the elytra; head reticulate, the meshes between the eyes nearly isodiametric. Protarsi ♂ with two strongly dilated joints.

Length, 2.75–3 mm.

Distribution. UNITED PROVINCES: Haldwani (*H. G. Champion*). BENGAL: Calcutta (*F. H. Gravely*); Sardah (*F. W. Champion*). CEYLON: Anuradhapura (*N. Annandale*). BURMA: Karen Hills (*L. Fea*); Insein (*D. J. Atkinson*); Rangoon. MALAY STATES. SIAM. JAVA. SUMATRA. BORNEO. CELEBES.

Type (Karen Hills) in the Genoa Civic Museum.

415. *Tachys sericeus*, *Motch.*

Tachys sericeus Motchulsky *, Bull. Mosc. 1851, ii, p. 507 ;
Andrewes, Revision, 1925, pp. 343 and 362 ; id., Trans. Ent.
Soc. Lond. 1928, p. 3.

Tachys photinus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 288.

Colour dark chestnut-red, subsericeous and faintly iridescent, head brown, elytra with the disk nearly black, the dark tint sometimes extending to the side margins, antennæ and legs ferruginous.

Head with deep single furrows, diverging behind ; eyes moderately prominent ; antennæ fine, filiform, joint 2 longer than 3. *Prothorax* cordate, subconvex, very nearly a half wider than long, sides very faintly sinuate behind, base evidently wider than apex, its sides somewhat oblique, hind angles obtuse, reflexed, without carina, the hind lateral pores projecting a little in front of them ; basal sulcus fairly deep, crenulate, narrowly interrupted, the median line just passing through it and sometimes forming an elongate pore at middle. *Elytra* depressed, a half longer than wide, rather rounded at apex, border setulose, rounded at shoulder, and extending inwards a little beyond the base of stria 4 ; striae all visible, converging at base, the inner ones punctate, moderately impressed, and nearly reaching base, 1 and 2 only reaching apex, where 2 is deep and bent outwards, 5 to 7 very faint, 8 deep on apical third, widely interrupted at middle, the stria on the middle of the elytron, gently curved and hooked in front, the pore near apex ; front dorsal pore at a fourth, on interval 6, hind one in the hook of the stria. Microsculpture consisting of fine transverse lines ; on the middle of the head it is very distinct, with a reticulation of only slightly transverse meshes. Protarsi ♂ with two strongly dilated joints.

Length, 3.25–4 mm.

Distribution. BENGAL : Calcutta. BIHAR : Pusa. BURMA : Bhamo ; Karen Hills at 4600 to 4900 feet ; Kawkareik (all *L. Fea*) ; Tenasserim (*J. W. Helfer*). MALAY STATES. SUMATRA. BORNEO. NEW GUINEA.

Type in the Moscow University Museum ; that of *photinus* in the Genoa Civic Museum. Motchulsky's type came, no doubt, from the Helfer collection.

Hardly two of the examples examined are quite alike, the principal differences being in size and colour and in the form of the basal sulcus, of which the interruption and pore at middle are sometimes more, sometimes less, distinct.

416. *Tachys prolixus*, Bates.

Tachys prolixus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 288 ;
Andrewes, Revision, 1925, pp. 343 and 364.

Colour ferruginous, sericeous and slightly iridescent, antennæ and legs lighter, elytra with a dark cloud on the disk extending to the side margins.

Head with deep curved furrows, extending to the back of the eye ; eyes rather flat ; antennæ filiform, joint 2 longer than 3. *Prothorax* cordate, a third wider than long, sides slightly sinuate close to base, which is evidently wider than apex, with oblique sides, the pore projecting very slightly in front of the angles, which are obtuse and reflexed ; median line clearly marked, basal sulcus rather vaguely crenulate, subinterrupted, and with the median line passing through it, basal area strigose. *Elytra* depressed, border setulose, rounding shoulder sharply and extending inwards rather beyond the base of stria 4 ; striæ crenulate, 1 to 4 fairly deep and practically reaching base, 1 reaching apex, but the remainder abbreviated behind, 2 deep close to but interrupted for some distance before apex, 5 to 7 just visible, 8 deep behind, widely interrupted at middle, stria on the middle of the elytron, deep, straight, hooked in front, the pore far back, a little removed from the stria ; front dorsal pore on interval 6 at a fourth, hind one in the hook of the stria. Microsculpture hardly visible on the elytra ; prothorax with fine transverse lines ; head reticulate, the meshes between the eyes twice as wide as long. Protarsi ♂ with two strongly dilated joints.

Length, 3.5 mm.

Distribution. BURMA : Karen Hills, 4600 to 4900 feet (L. Fea).

Type in the Genoa Civic Museum. This is the only specimen I have seen.

417. *Tachys gracchus*, sp. nov.

Colour flavous ; head, front margin of prothorax, and an elytral pattern piceous ; a dark band on the elytra is placed a little before middle and occupies quite a third of the surface ; it is continued forwards along intervals 1 to 4 on each side nearly to base, and the extreme apex is brown.

Head with short, deep furrows, diverging behind ; eyes rather prominent ; antennæ long and filiform, joint 2 stouter and longer than 3 ; mentum with two pores. *Prothorax* cordate, two-fifths wider than head, three-fifths wider than long, base barely wider than apex, its sides oblique, sides well rounded, slightly sinuate before base, hind angles obtuse and reflexed, but hardly rounded, without carina ; median line distinct between the transverse impressions, basal sulcus

deep, crenulate, without pore at middle, forming an angle at middle and not nearly reaching sides, the area behind it rugose-striate. *Elytra* flat, a third wider than prothorax, a half longer than wide, border minutely setulose, but not dentate, rounding shoulder and reaching a point opposite stria 4; striae fairly deep on disk, indistinctly crenulate, outer ones obsolete, but 4 and 5 are visible, even near base, 1 fairly deep to apex, 2 visible throughout and a little deeper near apex, the rest disappearing behind, 8 impressed on apical third, represented by pores on basal third, striae curved and not very long, ending on middle of elytron, the pore far back near apex; front dorsal pore on interval 6, at about a third, hind one within the hook of the striae. Microsculpture of the prothorax and elytra formed by hardly visible transverse lines, that on the head distinct, formed by meshes which are nearly isodiametric on the vertex, transverse at sides and behind.

Length, 2.4 mm.

Distribution. BURMA: Insein Division, Kondan (H. G. Champion).

Type in the British Museum. This is the only example seen.

418. *Tachys cardoni*, Andr.

Tachys cardoni Andrewes, Revision, 1925, pp. 343 and 364.

Colour ferruginous, the head hardly darker, border of the prothorax and border and suture of the elytra brownish.

Head with long, fairly deep, simple furrows, diverging behind; eyes rather flat; antennae slender, filiform, joint 2 longer than 3. *Prothorax* convex, cordate, nearly a half wider than long, base with its sides very slightly oblique, a little wider than apex, sides rounded and sinuate a little before the hind angles, which are right and somewhat reflexed, without any appreciable carina; basal sulcus minutely crenulate, slightly interrupted by the median line, the area behind the sulcus longitudinally striate. *Elytra* moderately flat, elongate, sides nearly parallel, not very much wider than prothorax, but more than a half longer than wide, border minutely setulose, rounded at shoulder and extending inwards to rather beyond the base of stria 4; striae 1 to 3 moderately impressed and crenulate, 4 to 7 more or less obsolete, though 4 and 5 are quite visible near base, and 7 behind, 1 entire, the rest evanescent behind, 2 deep near apex, 8 deep behind, wanting at middle, represented by large pores in front, striae long, curved, hooked in front, on the middle of the elytron, its pore near apex; front dorsal pore on the middle of interval 6 at a fourth from base, hind one in the hook of the striae. Microsculpture of the prothorax and elytra consisting of very fine transverse lines; that of the head reticulate and very

distinct, the meshes slightly transverse. Last ventral segment ♀ minutely setulose, the inner pores far removed from the margin.

Length, 3-3.4 mm.

Distribution. UNITED PROVINCES: Siwalik Hills and Dehra Dun (*M. Cameron*). BIHAR: Barwa (*Cardon*).

Type in the Brussels Museum; co-type in my collection.

The two examples found by Dr. Cameron, referred to in my Revision (p. 361) after *obsolescens* Bates, must be placed under this species.

419. *Tachys dorsalis*, *Motch.*

Tachys dorsalis Motchulsky *, Bull. Mosc. 1851. ii, p. 508; Andrewes, Revision, 1925, p. 497; id., Trans. Ent. Soc. Lond. 1928, p. 4.

Colour ferruginous, the greater part of the head and the disk of the elytra more or less darkly clouded.

Head with fairly deep, wide furrows; eyes moderately prominent; antennæ filiform, joint 2 a little longer than 3. *Prothorax* cordate, a half wider than long, base wider than apex, sides rounded in front and sinuate behind, hind angles right, sharp, and reflexed, without carina, the hind lateral pore just breaking the outline in front of the angle; median line very fine, basal sulcus deep, crenulate, hardly interrupted, but with a very minute pore at middle, the basal area uneven. *Elytra* rather flat, about a half longer than wide, border setulose, rounded at shoulder, and reaching base of stria 4; striæ more or less crenulate, not reaching base, 1 only reaching apex, 1, and sometimes 2, moderately deep, 2 interrupted behind, but impressed near apex, 3 and 4 visible, 5 to 7 obsolete, 8 moderately deep on apical third only, striae curved, hooked in front, on middle of elytron, the pore near apex; front dorsal pore on site of interval 6, hind one in the hook of the striae. Microsculpture of the elytra and prothorax formed by fine transverse lines, that of the head reticulate, the meshes, at least on the vertex, almost isodiametric.

Length, 3 mm.

Distribution. BURMA: Tenasserim (*J. W. Helfer*). The author gives "Ind. Or.," but it seems practically certain that the type came from Helfer's collection.

Type in the Moscow University Zoological Museum.

419 a. *Tachys dorsalis* var. *obsolescens*, *Bates.*

Tachys obsolescens Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 289; Andrewes, Revision, 1925, pp. 343 and 360.

A pale form of the species, in which the elytra are only vaguely clouded. When first I saw the type of *dorsalis*

I thought Bates's species distinct, but, after examining further material from the Prague Museum, I cannot believe it to be more than a local race. The depth of striae 2 to 4 is variable in the type-form, and does not offer a distinctive character. Motchulsky's type no doubt came from the Helfer collection.

Bates gives 2.5 mm. as the length of his specimen, but it is actually of the same length as *dorsalis*.

Distribution. BURMA : Karen Hills (*L. Fea*).

Type in the Genoa Civic Museum.

420. *Tachys tropicus*, Nietn.

Bembidium tropicum Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 421.

Tachys cinctipennis Motchulsky *, Bull. Mosc. 1861, i, p. 99 ; Andrewes, Revision, 1925, p. 498 ; id., Trans. Ent. Soc. Lond. 1928, p. 6.

Tachys tropicus Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 746 ; Andrewes, Revision, 1925, pp. 343 and 366, t. 4, f. 26 ; id., Fauna of British India, Carabidae, i, 1929, p. 16, f. 4 c.

Tachys subvittatus Bates *, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 151.

Colour ferruginous ; head, border of prothorax and of elytra brown, disk of elytra with a large, iridescent, sericeous, dark patch.

Head with deep and rather wide furrows, diverging behind ; eyes not prominent ; antennae rather long, filiform, joint 2 longer than 3. *Prothorax* cordate, a half wider than long, sides evidently sinuate rather before base, which is slightly wider than apex, its sides not oblique, hind angles rectangular or a little obtuse (not strongly projecting as stated by Bates), without carina, the lateral pore projecting very slightly ; median line clearly marked, basal sulcus uninterrupted, crenulate, and without pore, basal margin strigose. *Elytra* moderately depressed, about a half longer than wide, border setulose, rounded at shoulder, and reaching stria 4 ; striae crenulate, the four inner ones moderately impressed, reaching base, 1 and 2 reaching apex, near which 2 is rather deep and diverges outwards, the rest abbreviated behind, 5 to 7 visible but very faint, 8 deep behind, widely interrupted, but sometimes visible at middle, striole on the middle of the elytron, gently curved, hooked in front, the pore far back ; front dorsal pore on interval 6, at about a fourth (both Nietner and Bates are inaccurate regarding its position, while Motchulsky does not refer to it), hind one in the hook of the striole. Microsculpture of the prothorax and elytra formed by very fine, but quite visible, transverse lines ; on the head these are more conspicuous and form very wide meshes. Protarsi ♂ with two widely dilated joints.

Length, 3–3·25 mm.

Distribution. CEYLON: Colombo; Kandy (*Uzel*); Dikoya (*G. Lewis*); Trincomali, Bandarawella, and Kanthalay (all *W. Horn*).

Type in the Berlin University Zoological Museum; that of *cinctipennis* in the Moscow University Museum; that of *subvittatus* in the British Museum.

Putzeys, while omitting the better known *fasciatus*, includes this species in his table, though from the characters given he seems to have misidentified it.

quadrillum-group.

421. *Tachys quadrillum*, *Schaum*.

Tachys quadrillum Schaum *, Berl. Ent. Zeitschr. 1860, p. 201; Andrewes, Revision, 1925, pp. 369 and 372; id., Ins. Samoa, iv, 1, Col. 1927, p. 3.

Tachys pictipennis Putzeys *, Ann. Mus. Civ. Gen. vii, 1875, p. 745; Bates, Ann. Soc. Ent. Fr. 1889, p. 274; Andrewes, Trans. Ent. Soc. Lond. 1921, p. 178.

Tachys spilotus Bates *, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 152.

Colour black, iridescent; joints 1 and 2 of antennæ (rest brown), legs, margin of prothorax, margin and apex of elytra, with two spots on each elytron, reddish testaceous, the front spot rather large and elongate, the hind one smaller and somewhat transverse.

Head with rather wide, shallow furrows, extending on to clypeus, eyes moderately prominent, mentum with two pores, antennæ filiform, joint 2 longer than 3. *Prothorax* subconvex, a half wider than long, sides rounded in front and very faintly sinuate behind, base rather wider than apex, its sides a little oblique, the angles somewhat obtuse and rounded, without carina; basal sulcus finely crenulate, hardly interrupted, and without pore. *Elytra* moderately convex, about a half longer than wide, border setulose and dentate, rounded at shoulder and reaching base of stria 4; two moderately impressed, slightly crenulate dorsal striæ, not reaching base, 3 lightly impressed, 4 visible, 5 to 7 obsolete, 1 reaching apex, the others abbreviated behind, 8 deep but widely interrupted at middle, striae on middle of elytron long, curved, hardly hooked, the pore at apical third; front dorsal pore on stria 3, just before middle, hind one just behind front end of striae. Microsculpture consisting of fine transverse lines on prothorax and elytra, varying in visibility; head with a reticulation of small isodiametric meshes. *Sternum*: prosternum slightly sulcate; metasternal process finely bordered. Protarsi ♂ with two dilated joints.

Length, 2.6-2.8 mm.

Distribution. PUNJAB : Salt Range, Khewra Gorge (*H. S. Pruthi*). MADRAS : Ganjam district, Rambha, and Barkuda I. in Lake Chilka (*N. Annandale*); Chatrapur, sea-coast (*C. F. C. Beeson*). CEYLON : Colombo (*G. Lewis*); Weligama (*W. Horn*). ANNAM. CHINA. FORMOSA. PHILIPPINE IS. CELEBES. SAMOA.

Type in the Berlin Zoological Museum ; that of *pictipennis* in the Genoa Civic Museum ; that of *spilotus* in the British Museum.

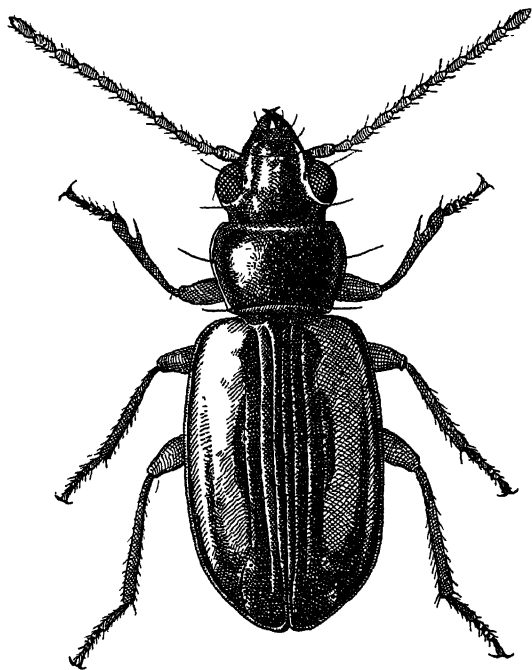


Fig. 39.—*Tachys quadrillum* Schaum.

This is the only species of the group found in the Indian region ; it is very variable, especially in the size of the elytral spots. A form is found in the Philippine Islands in which the elytra are entirely black (var. *impictus* Andr.), while in Formosa specimens are found in which the whole insect is of a pale whitish yellow (var. *languidus* Andr.). Dr. Pruthi's examples were taken "in salt-water stream," but there is no evidence that specimens are generally found in association with salt water.

Key to the truncatus-group.

- 1 (2) Mentum without pores; sutural stria impressed on apical half only; colour mainly brown. Length 1.5 mm. *truncatus*, Nietn. [p. 230.]
 2 (1) Mentum with two pores.
 3 (4) Elytra with a distinct apical stria; colour mainly flavous. Length 1.8 mm. *ochrias*, Andr., p. 232.
 4 (3) Elytra without a distinct apical stria; colour mainly piceous. Length 1.6 mm. *brachys*, Andr., p. 232.

422. *Tachys truncatus*, Nietn.

Bembidium truncatum Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 421.

Nestra (?) *truncata* Motschulsky, Bull. Mosc. 1861, i, p. 100.

Polyderis tenella Motschulsky *, Études Ent. xi, 1862, p. 35.

Perigona truncata Fauvel, Rev. d'Ent. xxvi, 1907, p. 101.

Tachys truncatus Andrewes, Revision, 1925, pp. 374 and 375, t. 4, ff. 20, 28, and 31; id., Tijdschr. Ent. lxxii, 1929, p. 306.

Tachys tenellus Andrewes, Revision, 1925, p. 498; id., Trans. Ent. Soc. Lond. 1928, p. 19.

Colour testaceous brown, head and elytra generally darker than prothorax; palpi, joints 1 and 2 of antennæ (rest darker), and legs pale testaceous.

Head large, not contracted behind eyes, frontal furrows short, wide, and fairly deep; mentum with two rounded depressions rather than pores; penultimate pore of labial palpi much dilated; eyes rather small and flat, minutely pubescent; antennæ short, moniliform, joint 2 considerably longer than 3. *Prothorax* moderately transverse, about equally contracted at extremities, base with its sides oblique, sides rounded in front and slightly sinuate before base, the hind lateral pore on the angle, usually projecting a little and breaking the continuity of outline, the angles somewhat obtuse and reflexed, without carina; median line fine, front transverse impression very distinct, basal sulcus shallow, not crenulate, uninterrupted, without any distinct pore at middle. *Elytra* flat and rather elongate, depressed in middle behind base, truncate at apex, shoulders well marked, border setulose and finely dentate, the setæ long (compared with those on other species), the denticulations far apart, forming an obtuse angle at shoulder, and extending inwards and slightly backwards to just beyond hind angles of prothorax; one dorsal stria, feebly impressed and hardly crenulate, not reaching base in front, deeper behind and reaching apex, 2 to 7 obsolete and traceable chiefly by the appearance of pores, 8 indicated only by large pores, striae vestigial, though its pore is visible near apex; dorsal pores fairly distinct on site of stria 3, at about a third and three-fourths. Microsculpture evident, though not sharply defined, consisting of transverse lines forming wide meshes on prothorax and elytra, the disk of prothorax practically smooth,

the meshes on head nearly isodiametric. *Sternum*: prosternum with a slight fovea; metasternal process unbordered. Venter setulose. Protarsi ♂ undilated. Some minute setæ round front angles of prothorax and here and there on upper surface.

Length, 1.5 mm.

Distribution. UNITED PROVINCES: Haldwani (*H. G. Champion*). CEYLON: Colombo; also examples in the Deutsch.

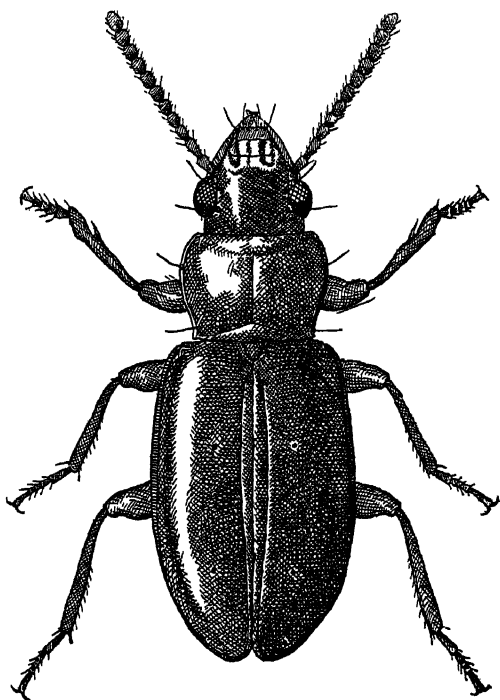


Fig. 40.—*Tachys truncatus* Nietner.

Ent. Mus. and Berlin Zool. Mus. BENGAL: Calcutta (*F. H. Gravely*); also examples in the Copenhagen Museum (Galatea Expedition). EASTERN DUARS (*H. Stevens*). BURMA: Shwegu (*H. G. Champion*). MALAY STATES. COCHIN CHINA. CAMBODIA. TONG-KING. JAVA. SUMATRA. BORNEO. PHILIPPINE IS.

Type in the Berlin Zoological Museum; that of *tenellus* in the Moscow University Museum.

423. *Tachys ochrias*, Andr.

Tachys ochrias Andrewes, Revision, 1925, pp. 374 and 376

Colour pale ferruginous, head rather darker, prothorax lighter than elytra; as the elytra are translucent, some vague dark markings are often seen through them, the border and suture being generally darker.

Head wide, with short, wide furrows, diverging a little behind; mentum with two pores; eyes small and not prominent, setulose; antennæ short, moniliform, joint 2 much longer than 3. *Prothorax* slightly convex, transverse, base with its sides very oblique close to hind angles, sides rounded and gently sinuate before base, the angles reflexed and obtuse, without carina; median line very faint, basal foveæ shallow, the sulcus deep, without any crenulation, its sides running forward to form an obtuse angle at middle. *Elytra* depressed, slightly truncate at apex, quite a third wider than prothorax, border minutely dentate and setose, forming a very wide angle at shoulder and extending inwards for some little distance beyond hind angles of prothorax; stria 1 vaguely crenulate, lightly impressed, and not reaching base, 8 traceable only by its large punctures, surface otherwise smooth, but with vague indications of punctures by means of which most of the other striæ can be traced, apical striole short but distinct, curved, on middle of elytron, the pore far back near apex; dorsal pores small but clear, on stria 3, at two-fifths and three-quarters. Microsculpture formed by very fine transverse lines on the elytra, obsolete on the head and prothorax. Body beneath minutely and sparsely setose, prosternum faintly depressed, metasternal process very indistinctly bordered, protarsi ♂ with hardly dilated joints.

Length, 1·8 mm.

Distribution. TEHRI STATE: Shripur. UNITED PROVINCES: West Almora, Tanakpur, Sarda River Gorge, Haldwani (Nandhaur River), and Siwalik Hills (all *H. G. Champion*); Mussooree and Dehra Dun (*M. Cameron* and *S. N. Chatterjee*); Asan River (*G. D. Bhasin*). EASTERN DUARS (*H. Stevens*). BURMA: Moulmein (*Fieber*); Shwebo division, Kyauktan (*H. G. Champion*), a dark variety.

Type in my collection.

424. *Tachys brachys*, Andr.

Tachys brachys Andrewes, Revision, 1925, p. 377.

? *Tachys atomarius* Bates (not Woll.), Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 152.

Colour: prothorax dark red, head and elytra piceous black; palpi, antennæ (darker towards apex), and legs ferruginous.

Head with short, wide furrows; mentum with two pores; eyes very flat, setulose; antennæ moniliform, joint 2 much longer than 3. *Prothorax* slightly convex, not quite a half wider than long, sides of base straight, sides rounded in front and gently sinuate behind, the hind angles sharp, slightly obtuse, and very little reflexed; median line and transverse impressions clearly marked, basal sulcus moderately deep, smooth, uninterrupted, and without pore at middle, the space between it and the margin very uneven. *Elytra* short, wide, and a little convex, evidently dilated behind, only slightly truncate at apex, border minutely setulose and dentate, but only forming a vague angle at shoulder; sutural stria moderately impressed, practically reaching base, hardly crenulate, all the other striae obsolete but generally traceable, stria 8 represented by pores only, striole vestigial; dorsal pores on inner side of site of stria 3, at a third and two-thirds. No appreciable microsculpture.

Length, 1.5–1.65 mm.

Distribution. UNITED PROVINCES: Haldwani (*H. G. Champion*). MADRAS: Nilgiri Hills (*H. L. Andrewes*); Palni Hills, shore of Lake Kodaikanal, 6850 feet (*S. W. Kemp*). BURMA: Tenasserim (*J. W. Helfer*). BENGAL (Galatea Expedition—Copenhagen Museum). MALAY STATES: Singapore (*C. J. Saunders*); Kuala Lumpur (*H. M. Pendlebury*).

Type in my collection.

One of the two examples from Singapore is coloured like the Indian specimens, but the other, though otherwise similar, is dark ferruginous.

I have compared the specimen in the British Museum taken by George Lewis at Bogawantalawa in Ceylon, and identified by Bates as *T. atomarius* Woll., with the type of that species. While it is true that the two examples are much alike, I cannot believe that they belong to the same species, if only on account of the extremely fine but distinct microsculpture of the elytra in Wollaston's insect. The head and elytra in the Ceylon specimen are brownish, the prothorax light testaceous. In size and form it agrees rather better with *truncatus* than with *brachys*, but there are pores on the mentum, the microsculpture on the elytra is very faint, while on the head and prothorax it is wanting altogether.

Key to the expansicollis-group.

- 1 (2) Front dorsal pore at a sixth from base;
colour black, elytra each with two
reddish spots; surface shiny. Length
2.5 mm.
- 2 (1) Front dorsal pore at quite a third from
base; surface dull.

[p. 234.
expansicollis, Bates,

- 3 (4) One dorsal stria, impressed on apical half only; elytral border glabrous, angulate at shoulder; colour flavous. Length 2·8 mm. *horni*, sp. nov., p. 235.
- 4 (3) Three fine dorsal striae; elytral border setulose, rounded at shoulder; colour black, elytra each with two white spots; surface sericeous. Length 2·4–3 mm. *bombycinus*, Andr., [p. 236.]

425. *Tachys expansicollis*, Bates.

Tachys expansicollis Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 293; Andrewes, Revision, 1925, p. 383.

Colour black, very vaguely æneous; antennæ with joints 1 and 2 ferruginous, the rest brown; the reddish elytral spots are small, just behind shoulder and at apical third.

Head with duplicated furrows, inner ones deep, semi-circular (convex inwards), extending on to clypeus, outer ones narrower, also deep, and continued behind eye; mentum very short, without pores; penultimate joint of labial palpi much inflated; eyes very prominent, supraorbital pores small, tuberculiform, a little removed from eye and rather near together; antennæ with joint 2 a little shorter than 3. *Prothorax* convex, cordate, not quite a half wider than long, base slightly bisinuate, its sides turning a little backwards, very strongly contracted in front, so that the angles are adjacent to the neck, the apex much narrower than the base, sides very sharply rounded in front, sinuate at a third from, and then straight to base, the margin rather widely explanate at middle, hind angles right and slightly reflexed, with a strongly marked carina, just inside which on each side is a deep fovea; apex rather faintly bordered throughout, basal sulcus deep, not crenulate, interrupted by the median line, which is deep at that point though not reaching base. *Elytra* convex, ovate, rather pointed at extremity, border smooth, forming an obtuse angle at shoulder and continuing to rather beyond the hind angles of the prothorax, behind which there is on each side a distinct depression; stria 1 deep throughout, reaching basal pore, 2 just traceable, 8 deep but widely interrupted at middle, apical stria very short and straight, a pore at its termination, round which the surface is depressed, another small pore far back near apex; dorsal pores at about a sixth from base and at middle, on site of stria 3, the front larger than the hind one. No evident microsculpture. Prosternum sulcate; metasternum with an arcuate groove in front; pro-tarsi ♂ with two slightly dilated joints.

Length, 2·5 mm.

Distribution. BURMA: Karen Hills (*L. Fea*).

Type in the Genoa Civic Museum. This is the only example seen.

426. *Tachys horni*, sp. nov.

Colour flavous, each elytron with a large, whitish, elongate, oval spot, extending to apex behind, and with a vague brown margin in front, which disappears at middle.

Head convex, with very short faint single furrows; mentum without pores; eyes only moderately prominent; antennæ short, joints 1 to 6 moderately long, 2 equal to 3, 7 to 11 a little dilated, submoniliform. *Prothorax* convex, quadrate, a half wider than head, two-thirds wider than long, widest at base, which is slightly arcuate and adjusted exactly to the base of the elytra, front angles rounded and projecting a little

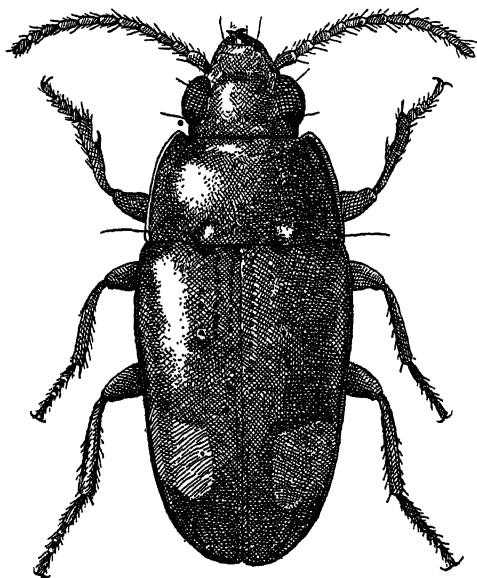


Fig. 41.—*Tachys horni*, sp. nov.

forward, sides evenly rounded from apex to base, hind angles slightly obtuse, blunt but not rounded, without carina; median line and front transverse impression both very faint, the latter indicated by underlying brown pores, basal sulcus very shallow, ending on each side in a small rounded fovea, midway between middle and hind angle, surface impunctate. *Elytra* convex, elongate, widest just behind shoulders and tapering gradually to apex, a fifth wider than prothorax, nearly three-fifths longer than wide, border smooth, angulate at shoulder; stria 1 impunctate, fairly deep on apical half, not nearly reaching base, 2 to 4, and also 1 in front, traceable by underlying brown pores, 8 deep behind as far as middle,

represented in front by three pores just behind shoulder, and another larger one at a fourth from base, striae rather short, curved, ending a little nearer margin than middle, the pore half-way along it; two small dorsal pores on the site of stria 3, at two-fifths and two-thirds respectively, and a pore on each side of scutellum, opposite the prothoracic foveæ. Microsculpture distinct, isodiametric throughout. Prosternal process sulcate; metasternal process bordered.

Length, 2.8 mm.

Distribution. CEYLON: Bentota (*W. Horn*).

Type in the British Museum. This is the only example seen.

The species is closely related to *T. gestroi* Andr. from the Mentawai Islands, but has no very near ally in the Indian fauna.

427. *Tachys bombycinus*, Andr.

Tachys bombycinus Andrewes, Revision, 1925, p. 385.

Colour black, upper surface with strong sericeous lustre, prothorax very dark red, joint 1 of antennæ, with base of joints 2 and 3, palpi, and legs ferruginous (femora darker, sometimes almost piceous, tibiæ very pale), elytra each with two white spots, front one fairly large, running obliquely backwards from shoulder to stria 2 and tapering a little inwards, a small round apical one bounded inwardly by stria 3.

Head small, with single shallow furrows, diverging behind, but with a fine impressed line along inner margin of eye: mentum without pores; eyes not prominent; antennæ long and thick, strongly dilated towards apex, joint 2 shorter than 3. *Prothorax* quadrate, moderately convex, a little less than a half wider than long, sides of base rather oblique, sides with the border minutely setulose, gently rounded in front, then straight to hind angles, which are slightly obtuse but not rounded, with a rudimentary carina; median line very fine, basal sulcus uninterrupted and very deep, with traces of crenulation only, its sides meeting in an obtuse angle at middle at about a fourth from base. *Elytra* rather flat, elongate-ovate, border minutely setulose throughout, rounded at shoulder and extending inwards very little beyond hind angles of prothorax; three very fine dorsal striæ, faintly crenulate, with traces of striæ 4 to 6, visible chiefly on the front white spot, 1 reaching base, 2 and 3 a little shorter but both fairly long, 2 a little longer than 3, 8 fairly deep near apex but barely reaching half-way to base, and represented in front by one or two large punctures, striae fairly long, curving a little inwards and ending mid-way between margin and suture,

the pore half-way along inner margin; two small dorsal pores on stria 3 at about a third and two-thirds. Prosternum without sulcus, metasternum not grooved in front, though the extremity of the pointed process is depressed; ♂ protarsi with two slightly dilated joints. The microsculpture is conspicuous and consists of fine parallel lines, more or less transverse but rather wavy, covering both prothorax and elytra, while on the front and vertex there are nearly isodiametric meshes; the surface also is microscopically punctate.

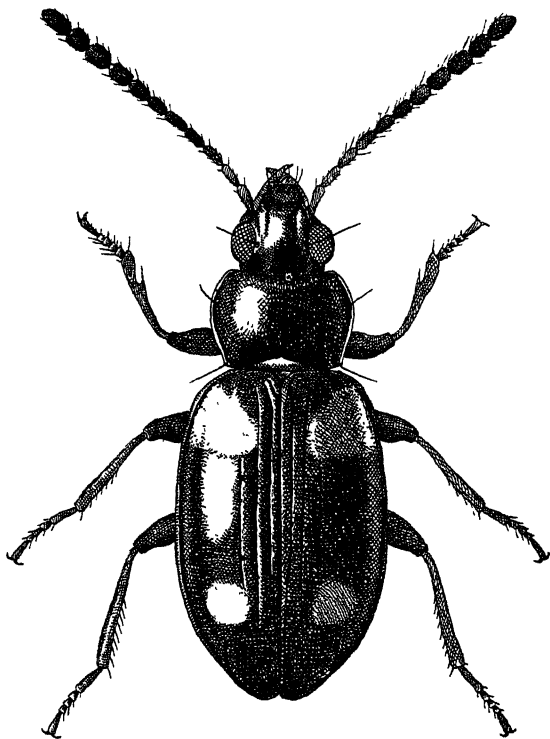


Fig. 42.—*Tachys bombycinus* Andrewes.

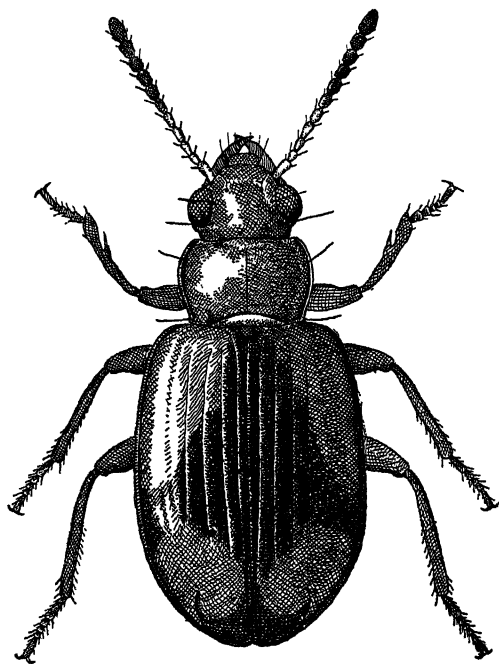
Length, 2.4–3 mm.

Distribution. TEHRI STATE: Shripur. UNITED PROVINCES: Tanakpur, Swal River Basin, Sarda River Gorge, Sarju Valley, and Haldwani (Nandhaur River) (all *H. G. Champion*); Dehra Dun (*M. Cameron*), Rikhikesh and Asan River (*G. D. Bhasin*), Anarwala. BENGAL: Gopaldhara (*H. Stevens*). EASTERN DUARS (*H. Stevens*).

Type in my collection.

*Key to the rhombophorus-group.*428. *Tachys rhombophorus*, Andr.*Tachys rhombophorus* Andrewes, Revision, 1925, p. 390.

Colour dark red beneath, head, prothorax, and apical border of elytra pale red-brown; prosternum, palpi, joints 1 to 4 of antennæ, legs, and elytra (including front half of epipleura) ferruginous; rest of antennæ, margin of venter, a large iridescent diamond-shaped spot on elytra, with margin at middle, apex, and apical half of epipleura black.

Fig. 43.—*Tachys rhombophorus* Andrewes.

Head with slight, shallow furrows, diverging a little behind; mentum without pores; eyes moderately prominent; antennæ rather short, submoniliform towards apex, joints 2 and 3 equal. *Prothorax* moderately convex, quadrate, barely a half wider than long, base rather wider than apex, its sides a little oblique, sides rounded in front, nearly straight behind, hind angles right and projecting a little laterally, without trace of carina; median line clearly marked at middle, basal sulcus uninterrupted, faintly crenulate. *Elytra* wide, ovate, moderately convex, border smooth, rounded at shoulder,

hardly extending inwards beyond hind angles of prothorax ; striae slightly arcuate (convex outwards), finely crenulate, 1 to 4 moderately deep, 5 lightly impressed, 6 and 7 obsolete, 8 deep behind, rather shallow on basal third, 1 reaching base, the others evanescent before and behind, though all the inner striae are fairly long, striole rather long, curving inwards, and ending a little nearer margin than suture, the pore mid-way along its length ; two dorsal pores on stria 3, at about a third and two-thirds. Prosternum with a rounded depression in the middle ; metasternum with a fine groove in front ; ♂ protarsi with two slightly dilated joints. The microsculpture of the elytra consists of very fine, wavy, transverse lines ; it is much more conspicuous on the prothorax, on the middle of which there is a reticulation of almost isodiametric meshes ; on the head the microsculpture is isodiametric.

Length, 2.75-3.5 mm.

Distribution. UNITED PROVINCES : West Almora, Ranikhet, Tanakpur, Sarda River Gorge, Haldwani (Nandhaur River), Hardwar (Ganges River), Sarju Valley, and Phandowala (Suswa River) (all *H. G. Champion*) ; Siwalik Hills (*M. Cameron*) ; Dehra Dun (*M. Bose*) ; Song River (*S. N. Chatterjee*) ; Lachiwala ; Dobhalwala ; Mothrawala (Rispana River). BENGAL : Gopaldhara, Namsu (H. Stevens). SIKKIM : Gielle Khola, and Tarkhola in the Tista Valley (*H. Stevens*). EASTERN DUARS (*H. Stevens*).

Type in my collection.

428 a. *Tachys rhombophorus* var. *evanidus*, *Andr.*

Tachys rhombophorus var. *evanidus* Andrewes, Revision, 1925, p. 65.

In the type-form the elytral spot reaches nearly to base and joins both the black apex and side margins, so that the ferruginous marking consists on each elytron of a large triangular shoulder-spot and an oblong apical one between striae 2 and 8. In some specimens, found along with the type-form, and to which the above name has been applied, the black marking on the elytra is much reduced and the central spot becomes a small oblong hardly extending outwards beyond stria 3 or stria 4, though the suture remains infuscate.

Type in my collection.

Key to the notaphoides-group.

- 1 (8) Elytral striae clearly punctate and moderately deep, at least on disk ; basal sulcus of prothorax distinctly interrupted at middle.
- 2 (5) Elytral striae rather coarsely punctate, colour castaneous.

- 3 (4) Antennæ distinctly dilated at apex ;
no microsculpture present. Length
2.4 mm. *dulcis*, Andr., p. 240.
- 4 (3) Antennæ hardly dilated at apex ;
a distinct microsculpture present.
Length 3.5 mm. [p. 241.
castaneus, Andr.,
- 5 (2) Elytral striæ moderately punctate,
colour black, elytra each with two
pale spots.
- 6 (7) Elytral spots of moderate dimensions,
front one a little oblique, hind one
rounded ; a microsculpture present.
Length 2.7-3.5 mm. [p. 242.
micraulax, Andr.,
- 7 (6) Elytral spots large, front ones covering
shoulders, uniting at middle, and
occupying two-fifths of the whole
area, apical spots somewhat oblique ;
no microsculpture present. Length
2.2-2.8 mm. [p. 243.
octostriatus, Net.,
- 8 (1) Elytra with finely crenulate and rather
shallow striæ, outer ones very fine ;
basal sulcus of prothorax hardly
interrupted at middle.
- 9 (10) Colour mainly brown ; basal sulcus
of prothorax without pore at middle.
Length 2.5 mm. [p. 243.
notaphoides, Bates,
- 10 (9) Colour mainly bronze-black ; median
line at base forming a slight elongate
pore in the middle of the basal sulcus.
Length 2.1 mm. [*spilotus*, Bates, p. 244.
notaphoides var. *calli*.

429. *Tachys dulcis*, Andr.

Tachys dulcis Andrewes, Revision, 1925, p. 395.

Colour light brown, margin of prothorax and elytra, with suture of latter, rather darker ; antennæ and legs ferruginous, basal joints of antennæ, palpi, and a large, vaguely defined apical spot on each elytron pale ferruginous.

Head very small, with flat eyes, frontal furrows short and rather deep ; mentum without pores ; antennæ submoniliform, joint 2 hardly shorter than 3. *Prothorax* transverse, sides of base slightly oblique, sides rounded in front, nearly straight behind, a rather wide marginal channel, hind angles projecting on each side as a small rectangular tooth, with a short but distinct carina ; median line very fine, the surface near its apex with a small triangular depression, basal sulcus moderately deep, vaguely crenulate, interrupted, and with a large pore at middle. *Elytra* ovate, only moderately convex, border minutely setulose and forming a very distinct denticiform angle at shoulder, thence bent back for a short distance to the base of stria 5 ; fully striate, the striæ moderately deep and distinctly punctate, 1 entire, 2 to 7 only slightly shortened at base, rather more so towards apex, 7 represented chiefly by fine punctures, 8 entire and fairly deep, striae

rather short, on middle of elytron, hooked in front, with the pore half-way along it; dorsal pores on stria 3, at a third and two-thirds, not very conspicuous owing to the punctures in the striæ. Microsculpture inconspicuous. Metasternal process finely bordered; protarsi ♂ with two slightly dilated joints.

Length, 2.4 mm.

Distribution. UNITED PROVINCES: Bareilly (*H. G. Champion*).

Type, a single ♂ specimen, in the British Museum

The species has no near allies among those hitherto described.

430. *Tachys castaneus*, *Andr.*

Tachys castaneus Andrewes, Revision, 1925, p. 396.

Colour chestnut-brown, faintly iridescent; palpi, femora, epipleura, and apical third of elytra lighter. Form rather wide and flat.

Head with fairly deep furrows, diverging a little behind, a slight oblong depression on each side between them and eye, both supraorbital pores at some distance from eye; mentum without pores; labrum very distinctly but widely emarginate; eyes flat; antennæ fairly long and slightly dilated towards apex, joint 2 a little shorter than 3, and 3 than 4. *Prothorax* cordate, moderately convex, base bisinuate, its sides curving a little backwards, wider than apex, sides rounded in front and slightly sinuate behind, marginal channel wide, border reflexed, lateral pores very distinct, hind angles right and sharp, with a strongly marked carina; median line rather fine, basal sulcus crenulate, narrow but not deep, interrupted at middle, where there is a large elongate pore which joins the median line. *Elytra* wide, flat, rather pointed at apex, a half wider than prothorax, border smooth, forming a distinct angle at shoulder, but not continued inwards beyond stria 5, which is opposite the hind angle of the prothorax; fully striate, the striæ not deep but very clearly punctate, 8 deep behind but hardly more impressed in front than the other striæ, 1 reaching basal pore, 2 to 4 not reaching base, 2 to 7 all abbreviated behind, apical striole fairly long and curving slightly inwards in front, ending mid-way between margin and suture, the pore half-way along it; dorsal pores distinct, on inner margin of stria 3, at about a fourth and three-fifths from base. Prosternal process longitudinally depressed in middle, metasternal process with a deep arcuate groove close to margin, ♂ protarsi with two slightly dilated joints. The microsculpture of the elytra consists of very fine, almost invisible, transverse lines; on the prothorax it can be clearly seen, the lines which form it being very variable in direction; on the front there are isodiametric meshes.

Length, 3.5 mm.

Distribution. BENGAL : Gopaldhara (*H. Stevens*).

Type, a unique ♂ example, in my collection.

Superficially a little like *sericeus*, but actually not very nearly related to any other described species.

431. *Tachys micraulax*, *Andr.*

Tachys micraulax Andrewes, Rec. Ind. Mus. xxvi, 1924, p. 115 ;
id., Revision, 1925, p. 397.

Colour black, iridescent, and shiny ; palpi, joints 1 to 4 of antennæ (rest fuscous), legs, apical border of elytra, and two fairly large spots on each elytron, the front one a little oblique, the hind one round, ferruginous.

Head with indistinctly duplicated furrows, inner ones wide, not very deep, diverging behind ; mentum without pores ; eyes moderately prominent ; antennæ rather slender, slightly dilated towards apex, joint 2 a little shorter than 3. *Prothorax* rather small, cordate, moderately convex, a third wider than long, sides gently rounded in front and equally gently sinuate rather in front of the hind angles, which are slightly acute and projecting, with a short but distinct carina ; median line moderately impressed on disk, basal sulcus distant from margin, fairly deep, crenulate, interrupted and with a pore at middle. *Elytra* convex, ovate, pointed at apex, three-fourths wider than prothorax, border rounded at shoulder, where one or two minute setæ are visible, and reaching stria 5 ; fully striate, the striae moderately deep and punctate, 1 and 8 deep throughout, 2 to 7 almost reaching base but disappearing behind near apex, striae curved, on middle of elytron, the pore half-way along it ; dorsal pores distinct, on stria 3, at about a third and three-fifths. Microsculpture of the elytra consisting of very fine transverse lines, that of the head and prothorax isodiametric or nearly so. Prosternum narrowly sulcate ; metasternal process depressed, with a deep angular groove near the extremity ; ventral surface minutely punctulate, last segment ♀ with the four pores in line ; protarsi ♂ with two slightly dilated joints.

Length, 2.7–3.5 mm.

Distribution. PUNJAB : Kotkhai, Giri River (*C. F. C. Beeson*). UNITED PROVINCES : West Almora and Upper Gumti Valley (*H. G. Champion*) ; Chakrata district, Chulli Khud (*S. N. Chatterjee*). BENGAL : Gopaldhara (*H. Stevens*). ASSAM : Garo Hills, Siju Cave, and Someswari River (*S. W. Kemp* and *B. Chopra*) ; Abor Expedition, Janakmukh (*S. W. Kemp*).

Type in my collection.

432. *Tachys octostriatus*, Net. [Plate I, fig. 6.]

Tachys octostriatus Netolitzky *, Att. Mus. Civ. Trieste, xii, 1934, p. 100.

Colour of head piceous; prothorax and joints 5 to 11 of antennæ brown; palpi, joints 1 to 4 of antennæ, and legs light ferruginous; elytra, including border, black, the basal two-fifths and a large oblique spot on each towards apex flavous, the resultant dark fascia extending forward a little on each side along intervals 1 and 2.

Head convex, with short furrows, diverging behind, two-slight carinæ on each side between them and front of eyes, which are rather flat; mentum without pores; antennæ extending beyond base of prothorax, slightly dilated towards apex, joints 2 and 3 equal. *Prothorax* convex, subcordate, about a third wider than head and as much wider than long, base a little wider than apex, sides rounded in front, faintly sinuate before base, hind angles right, with a small but distinct carina; median line rather slight but moderately deep behind, where it separates the two parts of the basal sulcus, which is fairly deep and crenulate, basal foveæ deep and rounded, basal area behind the sulcus finely rugose. *Elytra* convex, wide-oval, three-fifths wider than prothorax, rather less than a half longer than wide, border smooth, rounding shoulder and ending opposite stria 5; striæ entire and rather irregularly punctate, fairly deep on disk, and 1 deep to apex, the rest disappearing towards apex, and much shallower behind, where 6, and especially 7, are represented by the fine punctures, 8 deep throughout, striae deep, slightly curved, on middle of elytron, the pore a little before middle; two dorsal pores, adjoining stria 3, at two-fifths and two-thirds respectively, a large umbilicate pore on each side of scutellum. No microsculpture. Metasternal process bordered.

Length, 2.2-2.8 mm.

Distribution. KASHMIR: Sind Valley, Kangan; Sooroo Basin, Kargil (*L. Caporiacco*). BASHAHR: Sangla, 8000 feet (*R. N. Parker*).

The above description, which is that of the Bashahr example, had already been prepared when Dr. Netolitzky's paper was published. It now appears that there are differences among the few known specimens, both in regard to size and colour, and also in the depth of the elytral striæ, but these are evidently individual variations only.

433. *Tachys notaphoides*, Bates.

Tachys notaphoides Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 156; Andrewes, Revision, 1925, p. 398.

Colour brown, faintly æneous, head and margins of elytra

piceous, palpi and antennæ black, joint 1 of the latter, with the base of joint 2, and legs ferruginous, each elytron with two vague flavous spots, the front one oblique, the hind one transverse.

Head with short and rather shallow, indistinctly duplicated furrows; mentum without pores; eyes rather flat; antennæ stout, submoniliform, joint 2 equal to 3. *Prothorax* quadrate, about a third wider than long, with evenly and gently rounded sides, equally contracted at extremities, with only a suggestion of sinuation behind, hind angles slightly obtuse but not rounded, with a rudimentary carina; median line fine. basal sulcus fairly deep, not crenulate, slightly interrupted and without, or with only a vague, pore at middle, basal area a little uneven, hind margin minutely longitudinally striate. *Elytra* oval, border minutely setulose but not perceptibly denticulate, almost angled at shoulder and extending inward to stria 4; fully striate, the striæ fine and vaguely crenulate, 1 entire, the rest nearly reaching base in front, abbreviated behind, 6 rather and 7 very faintly impressed, 8 fairly deep throughout, striae moderately long, slightly curved, very deep and wide, ending on middle of elytron, the pore a little behind middle; dorsal pores small, on inner side of stria 3, at about a third and two-thirds. Microsculpture very clear, isodiametric on head and prothorax, the meshes on the elytra moderately transverse. Prosternum rather flat, not sulcate; metasternal process bordered; protarsi ♂ with two moderately dilated joints.

Length, 2.5 mm.

Distribution. MADRAS: Tranquebar (Galatea Expedition—Copenhagen Museum); Madras (*F. H. Gravely*). CEYLON: "Dikoya" on label, "Kitugalle" in text (*G. Lewis*).

Type (Ceylon) in the British Museum.

A very isolated species, without any near allies.

433 a. *Tachys notaphoides* var. *callispilotus*, Bates.

Tachys callispilotus Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 291.

Tachys notaphoides Bates var. *callispilotus* Andrewes, Revision, 1925, p. 399.

A little smaller and narrower than the type-form, bronze-black in colour, femora infuscate, elytra with smaller and more rounded spots. Head and prothorax similar, but the base of the median line forms an elongate pore at the middle of the basal sulcus and the sides of the prothorax behind show some transverse striation; the elytra are similar, but, whereas in the type-form they are only a half longer than wide, in the variety they are proportionately longer.

Length, 2-2.2 mm.

Distribution. UNITED PROVINCES : West Almora, Tanakpur, Haldwani, Jaunsar (*H. G. Champion*). MADRAS : Mopad in the Nellore district (*F. H. Gravely*). BENGAL (Galatea Expedition—Copenhagen Museum); Sardah (*F. W. Champion*). BURMA : Teinzo (*L. Fea*); North Toungoo, Pyonchaung Reserve (*C. F. C. Beeson*); Kyauktan, Shwebo division (*H. G. Champion*); Tenasserim (*J. W. Helfer*). ANNAM. TONG-KING.

Type (Teinzo) in the Genoa Civic Museum.

Key to the politus-group.

- 1 (16) Elytra with at least four fairly deep dorsal striæ.
- 2 (9) Frontal furrows forming with the clypeal suture a deep, more or less horseshoe-shaped impression, six dorsal striæ present.
- 3 (8) Prothorax with three distinct pores in the middle of the basal sulcus, stria 7 wanting.
- 4 (7) Prothorax only slightly contracted behind, elytral striæ moderately deep.
- 5 (6) Elytra black, each with a small pale spot at apex *latus*, Peyr., p. 249.
- 6 (5) Elytra reddish, each with a pale stripe along the side [*Andr.*, p. 250.
- 7 (4) Prothorax rather strongly contracted behind, elytra with deep striæ, chestnut-coloured, each with a pale ocellate spot *latus* var. *virgatus*,
- 8 (3) Prothorax with the three pores in the middle of the basal sulcus indistinct, a trace of stria 7 opposite the front dorsal pore..... *ocellatus*, Bates, p. 251.
- 9 (2) Frontal furrows and clypeal suture not forming a horseshoe-shaped impression.
- 10 (13) Elytra fully striate, without microsculpture. Length 2.9 mm.
- 11 (12) Elytra each with a pale apical spot .. *klugi*, Nietn., p. 252.
- 12 (11) Elytra without apical spots *klugi* var. *sulcatopunc-*
- 13 (10) Elytra with not more than six dorsal striæ, microsculpture present. [*tatus*, Putz., p. 253.
- 14 (15) Elytra with six dorsal striæ, without spots present. Length 2.75 mm. .. *chalcus*, Andr., p. 253.
- 15 (14) Elytra with five dorsal striæ, though traces of a sixth stria are sometimes present, each with two pale spots. Length 3.25 mm.
- 16 (1) Elytra with not more than three dorsal striæ. *ornatus*, Apetz, p. 254.
- 17 (24) Elytra with three impressed dorsal striæ.
- 18 (21) Elytra black, each with two pale spots (sometimes wanting), a microsculpture present. Length 2.5–2.8 mm.

- 19 (20) Prothorax a half wider than long, elytra with stria 3 distinctly impressed, at least between the dorsal pores, the pale spots very clear [p. 255.
tetraspilus, Sols.,
- 20 (19) Prothorax only a third wider than long, elytra with stria 3 formed by a lightly impressed crenulate line, the pale spots indistinct, sometimes wanting [p. 256.
perypinus, Bates,
- 21 (18) Elytra ferruginous, often with a vague dark band across the middle. Length 1.8-2.1 mm. [p. 257.
ceylanicus, Nietn.,
- 22 (23) Elytra with two dorsal pores only [porus, Andr., p. 258.
ceylanicus var. *poly-*
- 23 (22) Elytra with more than two dorsal pores
- 24 (17) Elytra with not more than two impressed dorsal striæ.
- 25 (82) Elytra with two dorsal striæ, stria 3 sometimes visible, but hardly impressed.
- 26 (77) Basal sulcus of prothorax interrupted at middle.
- 27 (54) Basal sulcus of prothorax not, or only indistinctly, crenulate; no micro-sculpture present.
- 28 (29) Elytral stria 1 much deeper than 2, stria 2 arcuate, so that interval 2 is very wide. Length 3.5 mm. *arcuatus*, Putz., p. 258.
- 29 (28) Elytral stria 1 not or hardly deeper than 2.
- 30 (33) Elytral stria 2 not extending forward beyond the front dorsal pore.
- 31 (32) Elytra dark but suffused with red, with two fairly large pale spots on each, apical joints of antennæ fuscous. Length 2.3 mm. [p. 259.
pæcilopterus, Bates *,
- 32 (31) Elytra black, with small pale spots, antennæ pale. Length 2.8 mm. [p. 260.
stenoderus, sp. nov.,
- 33 (30) Elytral stria 2 extending forward beyond the front dorsal pore.
- 34 (41) Sides of prothorax not sinuate behind, though the hind angles project on each side as a minute tooth.
- 35 (36) Black, iridescent, apex of elytra red, antennæ pale, sides of elytra rounded. Length 2.75 mm. [p. 261.
nalandæ, Andr.,
- 36 (35) Black, brown, or dark red, with two pale or reddish spots on each elytron, sides of elytra subparallel.
- 37 (40) Elytral stria 1 entire, apical joints of antennæ dark.
- 38 (39) Dark red or brown, elytral spots fairly distinct, antennæ rather short, sub-moniliform. Length 2.3 mm. [p. 259.
pæcilopterus, Bates *,
- 39 (38) Black, with vague dark red elytral spots, antennæ long, thick, and black. Length 2.75 mm. [p. 262.
malabaricus, Andr.,

* This species is included twice in the Key.

- 40 (37) Elytral stria 1 not reaching base, elytral spots small, pale, and transverse, antennæ pale. Length 2.7 mm. [p. 262.
pallidicornis, Andr.,
- 41 (34) Sides of prothorax sinuate before the hind angles.
- 42 (43) Elytra black, the extreme apex only reddish *tagax*, Andr., p. 263.
- 43 (42) Elytra black, but with at least one pale or reddish spot on each.
- 44 (49) Stria 3 invisible.
- 45 (48) Stria 2, viewed from above, extending only a little way before the front dorsal pore.
- 46 (47) Stria 2 ending abruptly just before the front dorsal pore, each elytron with two rather large and conspicuous pale spots *stevensi*, Andr., p. 263.
- 47 (46) Stria 2, viewed from above, hardly reaching the front dorsal pore, though when viewed sideways extending beyond it, each elytron with two small red spots *vafæ*, sp. nov., p. 264.
- 48 (45) Stria 2, viewed from above, extending well beyond the front dorsal pore, each elytron with two small distinct pale spots [p. 265.
nilgiricus, Andr.,
- 49 (44) Stria 3 visible, when the elytra are viewed sideways, between the two dorsal pores.
- 50 (53) Antennæ pale throughout, elytra with small dull reddish spots.
- 51 (52) Stria 3 fairly distinct (though hardly impressed), and usually extending forward a little beyond the front dorsal pore, elytra vaguely æneous and iridescent, each with two dull red spots [p. 266.
nannodes, Andr.,
- 52 (51) Stria 3 faint, visible only between the dorsal pores; elytra black, each with a small apical reddish spot. [p. 266.
vagabundus, sp. nov.,
- 53 (50) Antennæ with joints 5 to 11 fuscous, elytra each with two fairly large pale spots, stria 3 faint *salemus*, Andr., p. 267.
- 54 (27) Basal sulcus of prothorax distinctly, though sometimes finely, crenulate.
- 55 (66) Dorsal striæ crenulate.
- 56 (63) Elytra with stria 3 invisible, or at most barely traceable.
- 57 (62) Prothorax two-thirds wider than long (sometimes less), upper surface usually with an æneous tinge, dorsal pores of moderate size, a very fine microsculpture present, the head with faint isodiametric meshes. [Andr., p. 271.
politus var. *aspilotus*,
- 58 (59) Elytra unicolorous
- 59 (58) Elytra with reddish spots.
- 60 (61) Elytra each with an apical spot. *politus*, Motch., p. 268.
[*tus*, Bates, p. 270.
- 61 (60) Elytra each with an apical and humeral spot *politus* var. *homostic-*

- 62 (57) Prothorax less than two-thirds wider than long, upper surface black, elytra often reddish at base and apex, each with two pale spots, dorsal pores large, no microsculpture present [p. 271.
charactus, Andr.,
- 63 (56) Elytra with stria 3 quite visible, though hardly impressed, surface iridescent, a fine microsculpture present.
- 64 (65) Elytra without spots. Length 2.5 mm. *babaulti*, Andr., p. 271.
- 65 (64) Elytra each with two large pale spots. Length 3 mm. [p. 272.
championi, Andr.,
- 66 (55) Dorsal striæ not crenulate.
- 67 (76) Sides of prothorax sinuate, if at all, close to hind angles, form moderately convex. Length not exceeding 2.8 mm.
- 68 (75) Elytra each with two pale spots, sometimes vaguely defined.
- 69 (74) Frontal furrows duplicated.
- 70 (73) Elytral spots pale and fairly distinct, antennæ pale, submoniliform.
- 71 (72) Elytra black, sides of prothorax gently sinuate near the hind angles. Length 2.5 mm. *charis*, Andr., p. 273.
- 72 (71) Elytra red, sides of prothorax hardly sinuate near the hind angles. Length 2.2 mm. [Andr., p. 274.
charis var. *rubescens*,
- 73 (70) Elytral spots vague, dull red, antennæ filiform, with the apical joints fuscous. Length 2.75 mm. [p. 274.
finitimus, Walk.,
- 74 (69) Frontal furrows triplicated, elytra reddish, antennæ pale [p. 275.
striatifrons, Andr.,
- 75 (68) Elytra very dark red, without spots. Length 2.5 mm. *blandus*, Andr., p. 276.
- 76 (67) Sides of prothorax strongly sinuate at some little distance from the hind angles, form convex, elytra black, each with two pale spots. Length 3.3 mm. *eueides*, Bates, p. 277.
- 77 (26) Basal sulcus of prothorax uninterrupted, though a small pore is sometimes visible at middle.
- 78 (79) Upper surface black, femora infusate. Length 2.3 mm. [p. 277.
nigellus, sp. nov.,
- 79 (78) Upper surface brown or ferruginous, legs pale throughout.
- 80 (81) Colour brown-red, elytra each with two pale transverse spots, stria 3 invisible, basal sulcus of prothorax without pore at middle. Length 2 mm. [p. 278.
decoratus, Andr.,
- 81 (80) Colour pale ferruginous, elytra pale at base and each with a pale transverse spot at apex, stria 3 and even stria 4 just visible, basal sulcus of prothorax with a small pore at middle. Length 1.85 mm. *elutus*, sp. nov., p. 278.
- 82 (25) Elytra with only one dorsal stria.

- 83 (88) Basal sulcus of prothorax interrupted and with a pore at middle.
- 84 (87) Elytra very convex, mainly black, basal sulcus of prothorax with a deep pore or fovea at middle.
- 85 (86) Elytra black, each with two pale spots, basal sulcus of prothorax with a rounded pore at middle. Length 3 mm. [*sculptus*, Andr., p. 266. *nilgircus* var. *uni-*
- 86 (85) Elytra piceous, the apical third more or less ferruginous, basal sulcus of prothorax with an elongate fovea at middle. Length 2.4 mm. [p. 279. *thlibodes*, sp. nov.,
- 87 (84) Elytra moderately convex, ferruginous, the suture darker, basal sulcus of prothorax with a slight narrow pore at middle. Length 2.5-3 mm. [p. 280. *suturalis*, Motch.,
- 88 (83) Basal sulcus of prothorax uninterrupted and without pore at middle. Length about 2.2 mm.
- 89 (90) Elytra dark red, each with two large pale spots *unitarius*, Bates, p. 281.
- 90 (89) Elytra black, each with two vague dark red spots [var. nov., p. 281. *unitarius* var. *scotodes*,

434. *Tachys latus*, Peyr.

Tachys sulcatus Motchulsky * (not Putzeys), Bull. Mosc. 1851, ii, p. 509; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 740; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 199; id., Trans. Ent. Soc. Lond. 1928, p. 5.

Tachys latus Peyron, Ann. Soc. Ent. Fr. 1858, p. 364, t. 9, f. 3; Bates, Ann. Soc. Ent. Fr. 1889, p. 275; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 293; Mařan, Acta Soc. Ent. Čech. xxx, 1933, pp. 319-20; Netolitzky, Att. Mus. Civ. Trieste, xii, 1934, p. 100.

Tachys jurečeki Reitter *, Ent. Blätt. iv, 1908, p. 50.

Tachys aratus Andrewes, Revision, 1925, p. 408.

Colour black, upper surface often with an æneous tinge and occasionally suffused with deep chestnut, apex of elytra light red; palpi, antennæ, legs, and an apical round spot on each elytron between striæ 2 and 8 flavous; antennæ darker towards apex, sometimes fuscous.

Head with duplicated furrows, the outer ones slight, the inner ones forming with the clypeal suture a rather deep horse-shoe-shaped impression (convex forwards), a little flattened in front, the ends generally curving a little inwards behind; mentum without pores; eyes rather flat; joints 2 to 4 of antennæ equal, apical joints moniliform. *Prothorax* convex, about a third wider than long, base truncate, much wider than apex, sides rounded in front, but nearly straight, and very little contracted behind, the faintest possible sinuation before hind angles, which are slightly obtuse but not rounded, with a clearly marked carina; median line very faint or wanting, basal sulcus moderately impressed, not crenulate, interrupted,

and with three large pores at middle, the foveæ small but fairly deep. *Elytra* convex, elongate, not much wider than prothorax, with parallel sides, border smooth, forming an obtuse angle at shoulder and extending inwards to a point opposite stria 4; six fairly deep, impunctate, dorsal striæ, though with traces of minute crenulation, 1 reaching apex and also base, where it curves round in a deep groove to the basal pore, 2 to 4 and 6 not nearly reaching base, 5 extending rather further forward and ending in a punctiform impression, 2 to 6 just reaching apical spot behind, 8 very deep, striae rather short and straight, ending much nearer margin than suture, a distinct ridge between it and stria 8, the pore rather far forward; dorsal pores minute, on inner margin of stria 3, at basal third and just behind middle. Surface smooth and very shiny, without microsculpture. Prosternum sulcate; metasternum with a small but deep arcuate groove in front; protarsi ♂ with two very slightly dilated joints.

Length, 2.4–3 mm.

Distribution. KASHMIR: Sind Valley, Kangan (*L. Caporiacco*). UNITED PROVINCES: West Almora, Kosi River (Ranikhet), Tanakpur, Sarda River Gorge, Haldwani (all *H. G. Champion*); Fyzabad (*R. W. G. Hingston*). ? CEYLON (*F. Walker* coll. in Brit. Mus.). BIHAR: Pusa (*M. Cameron* and *N. P. Nandi*). BENGAL: Calcutta (*F. H. Gravely*); Sardah (*F. W. Champion*). BURMA: Bhamo (*L. Fea*); Ruby Mines (*Doherty*); Kyauktan (*H. G. Champion*); Moulmein (*Fieber*); Tenasserim (*J. W. Helfer*); Tavoy (*R. N. Parker*). SUMATRA. CAMBODIA. TONG-KING. ANNAM. ASIA MINOR. KURDISTAN.

Type not traced; that of *sulcatus* in the Moscow University Museum; that of *jurečeki* in Dr. Jureček's collection.

Burmese examples are rather more brassy than Indian ones and have the prothorax a little more contracted behind.

434 a. *Tachys latus* var. *virgatus*, *Andr.*

Tachys aratus Andrewes var. *virgatus* Andrewes, Revision, 1925, p. 410.

Lighter than the typical form, with pale antennæ, venter light red, elytra red, with a dark circle round the apical spots, which are yellow-white, the colour extending along intervals 7 and 8 up to and over the shoulder.

Distribution. BENGAL: Sardah (*F. W. Champion*).

Type in the British Museum.

Another Bengal specimen in the Copenhagen Museum is darker, but the spots are similarly united; in two specimens from Pusa the light stripe is interrupted at middle.

A rather larger form (3 mm. long) occurs in Indo-China, wider than the typical form, the prothorax more contracted

behind, the frontal furrows and elytral striæ both deeper, the elytra often suffused with dark red, the apical spot larger, and less clearly defined. This is named var. *vigens* Andrewes (Revision, 1925, p. 410), and the type is in the Paris Museum.

435. *Tachys ocellatus*, Bates.

Tachys ocellatus Bates *, Ann. Mus. Civ. Gen. xxxii, p. 292 ;
Andrewes, Revision, 1925, p. 410.

Colour chestnut-red ; antennæ, palpi, and legs pale ferruginous, elytra with a pale apical spot on a dark background.

Head with duplicated furrows, outer ones short and deep but uneven, inner ones forming with the clypeal suture a deep horseshoe-shaped impression ; mentum without pores ; eyes not prominent ; antennæ short and slender, joint 2 equal to 3. *Prothorax* convex, only a fourth wider than long, very little wider at base than at apex, sides narrowly bordered, evenly rounded, and slightly sinuate just before the hind angles, which are right, with only a rudimentary carina ; basal sulcus fairly deep, smooth, widely interrupted, with a pore at middle, the inner ends of the two parts depressed, so that from above there appear to be three pores, the foveæ wide and rounded. *Elytra* convex, elongate-oval, border smooth, subangulate at shoulder, and extending inwards to a point nearly opposite stria 4 ; six fairly deep impunctate dorsal striæ, which terminate very abruptly in front, 1 entire, 2 to 6 much abbreviated behind, 2 disappearing at a sixth from base, 2 to 5 gradually increasing in length in front, 6 a little shorter than 5, 7 wanting, 8 deep throughout, striae short and straight, much nearer margin than suture, the pore rather in front of middle ; dorsal pores small, on stria 3, at a third and three-fifths. No microsculpture.

Length, 2.6 mm.

Distribution. ASSAM : Naga Hills, 5000 feet (*S. N. Chatterjee*).
BURMA : Teinzo (*L. Fea*).

Type (Teinzo) in the Genoa Civic Museum.

Closely allied to *latus*, but smaller and chestnut-red. The frontal impression is rounded in front, deeper, and narrower, the clypeus convex, the prothorax narrower and more contracted behind, the elytra shorter, less parallel, more rounded at shoulder, the striæ deeper.

436. *Tachys belli*, Andr.

Tachys belli Andrewes, Revision, 1925, p. 411.

Colour black : antennæ, palpi, and legs very dark ferruginous, each elytron with apex and a large dull apical spot reddish.

Head with duplicated furrows, outer ones short, inner ones longer, fairly deep, sinuate, curving inwards behind, clypeal suture deep; mentum without pores; eyes not prominent; antennæ slight, joints 2 and 3 equal. *Prothorax* convex, a half wider than long, base considerably wider than apex, sides gently rounded in front, sinuate rather before hind angles, which are slightly obtuse, with a small straight carina; basal sulcus shallow, smooth, widely interrupted, the three central pores, present in the allied species, indistinct. *Elytra* convex, with parallel sides, border smooth, angulate at shoulder, extending inwards to a point opposite stria 4; six moderately impressed impunctate dorsal striæ, not ending abruptly in front, 1 entire, 2 practically reaching base and extending to a sixth from apex, 3 to 6 not quite reaching base and much shortened behind, 5 extending forward a little in front of the others and ending in a punctiform impression, a rudiment of 7 present opposite front dorsal pore, 8 deep throughout, striae short and deep, much nearer margin than suture, the pore in front of middle; dorsal pores on stria 3 at a third and three-fifths. No microsculpture. Prosternum deeply sulcate; metasternum with a transverse arcuate groove in front.

Length, 2.7 mm.

Distribution. SIND: Karachi (T. R. D. Bell).

Type in my collection.

Very near *latus*, but quite clearly differentiated by various characters, including a vestige of stria 7, which is present in all the specimens examined.

437. *Tachys klugi*, Nietn.

Bembidium klugi Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 423.

Tachys sulcatus Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 743; Bouchard, Ann. Soc. Ent. Fr. 1903, p. 170.

Tachys euglyptus Bates *, Trans. Ent. Soc. Lond. 1883, p. 268; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Tachys klugi Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 155; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 291; Andrewes, Revision, 1925, p. 414, t. 3, f. 6; id., Tijdschr. Ent. lxxii, 1929, p. 306.

Tachys feanus Bates *, Compt. rend. Soc. Ent. Belg. 1891, p. 326; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 292; Andrewes, in Mission dans les Provinces Centrales de l'Inde and dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 19.

Colour brassy, very shiny, more or less brown beneath; joints 1 to 3 of antennæ and legs ferruginous, the femora sometimes infuscate, elytra each with a small pale oblique apical spot.

Head with nearly parallel, duplicated frontal furrows, diverging slightly behind; mentum without pores; eyes not

prominent; antennal joints 2 and 3 equal. *Prothorax* convex, nearly two-thirds wider than long, base much wider than apex, sides gently rounded in front, faintly sinuate near base, hind angles right, with a very conspicuous carina, bounded inwardly by a rounded fovea; median line rather slight, basal sulcus deep, strongly crenulate, not interrupted, and with a large elongate pore at middle. *Elytra* convex, ovate, pointed at apex, border smooth, angulate, extending inwards and backwards to a point mid-way between striae 4 and 5; fully striate, the striae deep, wide and clearly punctate, 1 reaching apex and very nearly reaching base, the rest shortened at extremities, 5 reaching nearest to base and 2 to apex, 8 entire and very deep, striae deep and nearly straight, a little nearer margin than suture, the pore half-way along it; dorsal pores rather indistinct, on stria 3, at about a fourth and just behind middle. No microsculpture. Prosternum slightly sulcate; metasternal process with a transverse arcuate groove.

Length, 2.75–3 mm.

Distribution. SOUTH-EAST ASIA. Common throughout India, Ceylon, Burma, the Malay Peninsula and Archipelago, Indo-China, and the Philippine Islands, extending northwards as far as Japan.

Type in the Berlin University Zoological Museum; that of *sulculatus* not traced; that of *euglyptus* in the British Museum; that of *feanus* in the Genoa Civic Museum.

437 a. *Tachys klugi* var. *sulcatopunctatus*, Putz.

Tachys sulcatopunctatus Putzeys *, Ann. Mus. Civ. Gen. vii, 1875, p. 742; Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 292; Bouchard, Ann. Soc. Ent. Fr. 1903, p. 170.

Tachys klugi Nietner var. *sulcatopunctatus* Andrewes, Revision, 1925, p. 414.

The variety only differs from the typical form in the absence of an apical spot.

438. *Tachys chaldeus*, Andr.

Tachys chaldeus Andrewes, Revision, 1925, p. 415.

Colour deep bronze; joints 1 to 4 of antennæ (rest brown), basal joints of palpi, and legs flavous.

Head with short, slight, duplicated furrows; mentum without pores; eyes moderately prominent; antennæ short and slender, joints 2 and 3 equal. *Prothorax* convex, two-thirds wider than long, base much wider than apex, sides strongly contracted in front, hardly at all behind, without sinuation before base, hind angles right, the carina short but evident; basal sulcus rather fine and not very deep, finely punctate, not interrupted, and with the pore at middle

hardly larger than the others. *Elytra* short-ovate, very convex, border smooth, angulate at shoulder and extending inwards to a point half-way between striae 4 and 5; six deep impunctate dorsal striae, 1 entire, 2 to 6 shortened behind, 2 reaching base, 3 to 5 disappearing a little before base, 6 rather shorter, 4 to 6 all turning slightly outwards in front, 7 wanting, 8 deep throughout, striae curved, on middle of elytron, the pore half-way along it; dorsal pores minute, on stria 3, at a third and three-fifths, only visible under strong magnification. Microsculpture very distinct, elytra with the meshes moderately transverse, head and prothorax with isodiametric meshes. Prosternum not sulcate, metasternal process transversely grooved.

Length, 2.75 mm.

Distribution. UNITED PROVINCES: West Almora and Haldwani (*H. G. Champion*).

Type in the British Museum.

Very similar to *æneus* Putzeys, which is found in the Malay Archipelago, but in that species striae 6 and 7 are both wanting.

439. *Tachys ornatus*, *Apetz*.

Bembidium ornatum Apetz, Col. Brehm, 1854, p. 12.

Bembidium orientale Nietner *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 425.

Tachys ornatus Schaum, Berl. Ent. Zeitschr. 1863, p. 92; Bates, Ann. Soc. Ent. Fr. 1889, p. 275; Kuntzen, Mitt. Zool. Mus. Berl. ix, 1919, p. 154; Andrewes, Rec. Ind. Mus. xxii, 1921, p. 341; id., Revision, 1925, p. 416, t. 4, f. 24; id., Fauna of British India, Carabidæ, i, 1929, p. 16, f. 4a.

Tachys orientalis Bates, Ann. Mag. Nat. Hist. (5) xxii, 1886, p. 156.

Colour. brassy: joints 1 to 3 of antennæ (rest fuscous) and legs ferruginous, two spots on each elytron flavous, the front one extending inwards to stria 5, the hind one to stria 3.

Head with rather short, straight, duplicated furrows; mentum without pores; eyes moderately prominent; antennæ rather short and a little dilated at apex, joints 2 and 3 equal. *Prothorax* rather convex, a half wider than long, strongly contracted towards apex, but not at all behind, the sides, which have rather a thick border, running straight backwards from middle to hind angles, which are right, with a well-marked carina, bounded inwardly by an elongate depression; basal sulcus not very deep, clearly crenulate, barely interrupted, but with a pore at middle, a small fovea on each side half-way between middle and margin. *Elytra* moderately convex, with parallel sides, not much wider than prothorax, a half longer than wide, border smooth, angulate at shoulder, and extending inwards to a point half-way between striae 4 and 5; five fairly deep dorsal striae, not crenulate, 6 often visible as a

fine line on the middle of the elytron, 8 deep throughout, stiole short and straight, rather nearer margin than suture, the pore half-way along it; dorsal pores small and indistinct, on stria 3, at a fourth and rather behind middle. Microsculpture fine but distinct, the meshes isodiametric on head and prothorax, moderately transverse on the elytra. Prosternum slightly sulcate; metasternal process with a transverse arcuate groove.

Length, 3–3.5 mm.

Distribution. UNITED PROVINCES: Dehra Dun (*M. Cameron* and *J. C. M. Gardner*); Asan River (*G. D. Bhasin*); Phandowala, Suswa River; West Almora, Jaunsar, and Hardwar, Ganges River (*H. G. Champion*); Fyzabad (*R. W. G. Hingston*). CENTRAL PROVINCES: Nagpur, Hoshangabad, and Chiridongra (*E. A. d'Abreu*). MADRAS: Madras (*F. H. Gravely*); Barkuda Island in Lake Chilka (*N. Annandale* and *F. H. Gravely*); Trichinopoly (*R. O. Jermyn*); Madura (*R. B. Wright*). MYSORE: Chikkaballapura (*T. V. Campbell*). CEYLON: Colombo (*G. Lewis*); Hambegamuwa; Elephant Pass (*G. M. Henry*); Anuradhapura (*W. Horn*). BIHAR and ORISSA: Ranchi (*W. H. Irvine*); Puri (*S. W. Kemp*). PHILIPPINE IS. ADEN. YEMEN. SUDAN. ABYSSINIA. DAMARALAND. A specimen from Motchulsky's collection is labelled "Sicily," probably in error.

Type not traced; that of *orientalis* in the Zoological Museum of the Berlin University.

440. *Tachys tetraspilus*, *Solsky*.

Tachys tetraspilus Solsky, in Fedchenko's Reise in Turkestan, ii, pt. 5, 1874, p. 114; Reitter, Deutsch. Ent. Zeitschr. 1894, p. 33; Andrewes, Revision, 1925, p. 443; id., Journ. Bomb. Nat. Hist. Soc. xxxv, 1932, p. 862.

Colour black, slightly iridescent, underside piceous brown; palpi, joints 1 and 2 of antennæ (rest fuscous), and legs ferruginous; each elytron with two flavous spots, an oblong one on shoulder, a round one towards apex.

Head with short, parallel, vaguely duplicated furrows; mentum without pores; eyes moderately prominent; antennæ rather short and stout, joints 2 and 3 equal. *Prothorax* fully a half wider than long, base a little wider than apex, sides lightly rounded in front, very moderately contracted and only faintly sinuate before base, hind angles slightly obtuse but sharp, with a short carina; median line faint, basal sulcus moderately deep, crenulate, just interrupted, the pore at middle not very distinct from the general crenulation. *Elytra* ovate, moderately convex, border smooth and extending inwards some little way beyond hind angles of

prothorax ; three dorsal striæ, not crenulate, diminishing in length outwards, 1 entire, 2 extending a little beyond first dorsal pore in front, both 2 and 3 extending far beyond the second one behind, 3 as seen from above limited by the front pore, but, viewed sideways, traceable nearly to base, 4 just visible, 8 entire but not quite so deep as in most of the allied species, striae fairly long and gently curved to middle of elytra, the pore half-way along it ; dorsal pores small, on stria 3, at about a third and three-fifths. Microsculpture faint, formed by fine transverse lines, just visible on the elytra, obsolete on disk of the prothorax, the head with a slight reticulation of moderately transverse meshes. Prosternum only faintly depressed at middle ; metasternal process with a sharply curved arcuate groove behind it.

Length, 2.8 mm.

Distribution. BIHAR : PUSA. UNITED PROVINCES : Dehra Dun, Dobhalwala. PUNJAB : Lyallpur (*K. N. Trehan*). WAZIRISTAN. TURKESTAN. TRANSCASPIA.

Type in the University Zoological Museum, Moscow.

441. *Tachys peryphinus*, *Bates*.

Tachys peryphinus Bates *, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 153 ; Andrewes, Revision, 1925, p. 435.

Colour black or piceous, with an æneous tinge ; joints 1 to 3 of antennæ (rest brown) and legs flavous, penultimate joint of palpi fuscous, two faint pale spots (sometimes wanting) on each elytron.

Head with short, indistinctly duplicated furrows, diverging slightly behind ; mentum without pores ; eyes not prominent ; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* moderately convex, a third wider than long, base a little wider than apex, sides very gently rounded and sinuate just before the hind angles, which are right, with a distinct carina ; median line very fine, basal sulcus fairly deep, finely crenulate, interrupted, and with a pore at middle. *Elytra* moderately convex, slightly pointed at apex, border smooth, rounded at shoulder and extending inwards a little beyond hind angles of prothorax ; three finely crenulate dorsal striæ, 1 entire, but all (though subinterrupted) nearly reaching base, 2 shortened behind, 3 not extending backwards beyond hind dorsal pore, 1 and 2 fairly deep, 3 very lightly impressed and very clearly crenulate, 4 just visible, 8 deep throughout, striae rather short, on middle of elytron, the pore half-way along it ; dorsal pores distinct, on stria 3, at a third and three-fifths. Microsculpture of the elytra and prothorax fine but quite distinct, consisting of fine transverse lines, rather more visible on the latter than the former ; vertex with isodiametric

meshes. Prosternum rather deeply sulcate; metasternum with a fairly deep arcuate groove behind the process.

Length, 2.8 mm.

Distribution. CEYLON: Kitugalle (*G. Lewis*); Nalanda (*W. Horn*).

Type in the British Museum.

442. *Tachys ceylanicus*, *Nietn.*

Bembidium ceylanicum Nietner *, *Ann. Mag. Nat. Hist.* (3) ii, 1858, p. 423.

Tachys flaviculus Motschulsky *, *Études Ent.* viii, 1859, p. 39; Putzeys, *Ann. Mus. Civ. Gen.* vii, 1875, p. 746; Andrewes, *Trans. Ent. Soc. Lond.* 1919, p. 198; id., *Trans. Ent. Soc. Lond.* 1928, p. 18.

Tachys anceps Putzeys *, *Ann. Mus. Civ. Gen.* vii, 1875, p. 742.

Tachys infans Bates *, *Ann. Mag. Nat. Hist.* (5) xvii, 1886, p. 154; id., *Ann. Mus. Civ. Gen.* xxxii, 1892, p. 294.

Tachys ceylanicus Andrewes, *Revision*, 1925, p. 436; id., *Tijdschr. Ent.* lxxii, 1929, p. 307.

Colour ferruginous, palpi, joints 1 to 3 of antennæ, and legs a little lighter, elytra usually with a vague dark band across the middle.

Head with fairly deep, but short, inner furrows, slightly divergent behind, outer ones obsolete; mentum without pores; eyes not prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* cordate, moderately transverse, about equally contracted at extremities, sides rounded in front and sinuate at some little distance from base, the angles right, with a short slight carina; median line fine, basal sulcus fairly deep, hardly crenulate, interrupted and with a pore at middle (practically with two others, one on each side, owing to the deepening of the basal sulcus at those points), basal foveæ small but deep, just inside the carina. *Elytra* with the border minutely setulose (but the setæ are so small and fugitive that they are very difficult to see), hardly angulate at shoulder, extending inwards and slightly backwards to a point just beyond hind angles of prothorax; three fairly deep crenulate dorsal striæ, 4 to 7 obsolete, 1 entire, 2 and 3 shortened at extremities, 8 deep and entire though a little shallower at middle, striae not very long, curving inwards in front and ending on middle of elytron, the pore about half-way along it; dorsal pores on stria 3, at about a fourth and a little behind middle. No microsculpture. Prosternum with a small rounded depression, metasternal process strongly bordered, protarsi ♂ with two joints hardly perceptibly dilated.

Length, 1.8-2 mm.

Distribution. UNITED PROVINCES: West Almora (*H. G. Champion*); Dehra Dun (*A. K. Sharma*) and Nim Nadi (*M. Cameron*). MYSORE: Teppukadu (*H. L. Andrewes*). CEYLON:

Colombo (*J. Nietner*); Kandy (*G. Lewis*); Trincomali (*W. Horn*). BENGAL: Calcutta (*F. H. Gravely*); Gopaldhara (*H. Stevens*). SIKKIM: Gielle Khola in the Tista Valley (*H. Stevens*). EASTERN DUARS (*H. Stevens*). BURMA: Tenasserim (*J. W. Helfer*); Karen Mountains and Sennmigion (*L. Fea*). MALAY STATES. JAVA. SUMATRA. CELEBES. PHILIPPINE IS. ANNAM. HONGKONG.

Type in the Berlin University Zoological Museum; that of *flaviculus* in the Moscow University Zoological Museum; that of *anceps* in the Brussels Museum; that of *infans* in the British Museum.

The area of distribution is a wide one, and, as we should anticipate, both size and form show a good deal of variability.

442 a. *Tachys ceylanicus* var. *polyporus*, *Andr.*

Tachys ceylanicus Nietner var. *polyporus* Andrewes, Revision, 1925, p. 437.

In some specimens the dorsal pores are larger and more numerous than in the type-form, though very variable in size, number, and position. As a rule, there are three or four along the course of stria 3 and a very large one on stria 4 or interval 5 at about a fourth from base; between this pore and the base of stria 3 there are sometimes one or two other large pores.

Length, 2 mm.

Distribution. UNITED PROVINCES: West Almora, Tanakpur, Haldwani (Nandhaur River), and Chilla (Ganges River) (all *H. G. Champion*); Dehra Dun (*M. Cameron* and *J. C. M. Gardner*). TEHRI STATE: Shripur.

Type in the British Museum.

443. *Tachys arcuatus*, *Putz.*

Tachys arcuatus Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 744; Andrewes, Trans. Ent. Soc. Lond. 1922, p. 247; id., Revision, 1925, p. 438.

Colour black to dark red; joints 1 to 4 of antennæ (rest fuscous), legs, and two rather small elytral spots ferruginous (shoulder-spot wanting in the type).

Head with short, deep, frontal furrows, almost foveolate, not duplicated; mentum without pores; eyes moderately prominent; joint 2 of antennæ almost as long as 3. *Prothorax* convex, quadrate, not quite a third wider than long, base a little wider than apex, sides very gently rounded, not sinuate except that the hind angles project slightly as a sharp tooth, the carina rudimentary; median line very fine, basal

sulcus fairly deep, nearly smooth, widely interrupted, and with a large pore at middle, but the two parts are deeper at their inner extremities, so that from above there appear to be five pores, of which the outer ones (the basal foveæ) are the largest. *Elytra* convex, border smooth, rounded at shoulders, and only just reaching hind angles of prothorax; two impunctate dorsal striæ, 1 entire and very deep, 2 deep and strongly arcuate, extending well beyond dorsal pores, 8 deep throughout, striae short and nearly straight, much nearer margin than suture, the pore a little nearer front than apex, interval 2 at middle nearly twice as wide as 1; dorsal pores large and close together, on site of stria 3 at a fifth and middle respectively. No evident microsculpture. Prosternum slightly sulcate, metasternum with a deep arcuate groove rather near front border, last ventral segment ♀ with the four pores in a line.

Length, 3.5 mm.

Distribution. CEYLON (*J. Nietner*).

Type in the Stettin Museum.

The narrow prothorax, with its very gently rounded sides, and the peculiar form of the elytral striation distinguish this from any other eastern species known at present.

444. *Tachys pœcilopterus*, Bates.

Tachys pœcilopterus Bates *, Trans. Ent. Soc. Lond. 1873, p. 331; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 295; Andrewes, Revision, 1925, p. 440, t. 3, f. 16; id., Ent. Month. Mag. 1926, p. 67; id., Tijdschr. Ent. lxxii, 1929, p. 307.

Tachys deliciculus Bates *, Ann. Soc. Ent. Fr. 1889, p. 274; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 295.

Colour dark red; joints 1 and 2 of antennæ (rest fuscous), palpi, and legs ferruginous, elytra chestnut-red (disk darker), with four pale spots, the front ones large and vague, the hind ones transverse and on a darker background.

Head with short, clearly duplicated furrows, rather widely separated; mentum without pores; eyes not prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* convex, a third wider than long, equally contracted at extremities, sides narrowly bordered and gently rounded, barely sinuate close to hind angles, which are slightly obtuse and not very sharp, with a slight carina; median line obsolete, basal sulcus not very deep, indistinctly crenulate, interrupted, and with a pore at middle. *Elytra* convex, ovate, with smooth rounded border, extending inwards just beyond hind angles of prothorax; two rather shallow dorsal striæ, not crenulate, 1 entire, 2 shortened at extremities, and, viewed either sideways or from in front, not extending forward beyond the

first dorsal pore, 3 to 7 wanting, 8 deep throughout, striae on middle of elytron, slightly curved, the pore at middle; dorsal pores small, on stria 3, at a third and three-fifths. No microsculpture. Prosternum slightly sulcate, metasternal process finely bordered, without transverse groove behind it.

Length, 2.1–2.5 mm.

Distribution. MYSORE: Bangalore. BOMBAY: South Kanara, Agsur (*B. M. Bhatia*). PUNJAB: Lyallpur (*K. N. Trehan*). UNITED PROVINCES: Kheri Forest, Sitapur, West Almora, Ranikhet, Haldwani, and Sarju Valley (all *H. G. Champion*); Dehra Dun. BENGAL: Calcutta (*F. H. Gravely*); Sardah and Sundarbans (*F. W. Champion*); Gopaldhara (*H. Stevens*). SIKKIM: Tarkhola in the Tista Valley (*H. Stevens*). EASTERN DUARS (*H. Stevens*). ASSAM: Garo Hills, Someswari River (*S. W. Kemp* and *B. Chopra*). BURMA: Tharrawaddy (*G. Q. Corbett*); Tenasserim (*J. W. Helfer*); Bhamo, Teinzo, Prome, and Rangoon (all *L. Fea*). MALAY STATES. SIAM. JAVA. SUMATRA. CELEBES. SUMBAWA. INDO-CHINA. CHINA. JAPAN.

Type in Mr. René Oberthür's collection; that of *deliciosus* in the Paris Museum.

The species is a common one in South-East Asia, but in India it seems to be confined to the Northern Provinces, though there is in the British Museum a solitary example labelled "Bangalore." In the type of *deliciosus* and in some other examples from Indo-China, Siam, Java, and Sumbawa stria 2 of the elytra extends a little in front of the first dorsal pore.

445. *Tachys stenoderus*, sp. nov.

Colour black; palpi, antennæ, and legs flavous; each elytron with a small, pale, rounded spot near shoulder, and a second, barely visible, small reddish spot towards apex.

Head with duplicated furrows, the inner ones short, parallel, and fairly deep; mentum without pores; eyes moderately prominent; antennæ somewhat dilated at apex, joints 2 and 3 equal. *Prothorax* convex, cordate, two-fifths wider than long, base a little wider than apex, sides rounded in front, sinuate a little before base, the hind angles right, with a well developed carina; median line very faint, basal sulcus deep, not crenulate, interrupted, and with an elongate pore at middle, the inner ends of the two parts punctiform, so that in certain lights there seems to be three pores at middle. *Elytra* convex, ovate, three-fifths wider than prothorax, two-fifths longer than wide, border smooth, rounded at shoulder, and extending inwards rather beyond hind angles of prothorax; two fairly deep dorsal striæ, not crenulate, 1 reaching apex but not base,

2 stopping short of the first dorsal pore in front, but extending beyond the second one behind, though viewed at a certain angle both 1 and 2 can be traced further forward, 8 deep throughout, striae curved, ending on the middle of the elytron, the pore half-way along it; dorsal pores distinct, on the site of stria 3, at a third and three-fifths. Surface very smooth, without microsculpture. Prosternum deeply sulcate; metasternal process with an arcuate groove behind it.

Length, 2.8 mm.

Distribution. MADRAS: Nilgiri Hills, Hillgrove, 4000 feet (G. D. Bhasin), 1 ex. (♀).

Type in the British Museum.

446. *Tachys nalandæ*, Anār.

Tachys nalandæ Andrewes, Revision, 1925, p. 441.

Colour piceous; elytra vaguely red and opalescent, venter a lighter red; antennæ, palpi, and legs flavous.

Head with short but deep, almost punctiform inner furrows, outer ones obsolete, the oblique sides of head in front reflexed; mentum without pores; eyes not prominent; antennæ short and slender, joints 2 and 3 equal. *Prothorax* transverse, more contracted in front than behind, moderately convex, base truncate, sides evenly rounded in front and practically straight behind to the angles, which would be obtuse but for a minute tooth which projects a little laterally on each side; median line obsolete, basal sulcus rather shallow, not crenulate, and not far removed from base, interrupted, and with a small pore at middle. *Elytra* short-ovate, convex, very nearly a half wider than prothorax, border smooth, forming a very obtuse angle at shoulder, thence directed inwards and a little backwards to a point rather beyond hind angle of prothorax; two very vaguely crenulate dorsal striae, 1 reaching apex but not quite reaching base, 2 abbreviated at extremities, 8 entire, striae moderately long, curved, ending on middle of elytron, the pore half-way along it; dorsal pores small, on site of stria 3, at about a fourth and three-fifths. Microsculpture evident only on front of head, where there is some slight transverse reticulation. Prosternum sulcate; metasternum with a short slightly angular groove in front; ♂ protarsi with two slightly dilated joints; last ventral segment ♀ with the four pores in line, rather a wide space between the two inner ones.

Length, 2.5–3 mm.

Distribution. CEYLON: Nalanda (W. Horn); Urugalla (G. M. Henry).

Type in my collection.

447. *Tachys malabaricus*, Andr.

Tachys malabaricus Andrewes, Revision, 1925, p. 443.

Colour black; joint 1 of antennæ, with base of 2, and legs ferruginous, each elytron with two vague transverse reddish spots, the front larger than the hind one.

Head with fairly deep, duplicated furrows; mentum without pores; eyes rather prominent; antennæ filiform, exceptionally long and thick, somewhat dilated towards apex, joints 2 and 3 equal. *Prothorax* transverse, equally contracted at extremities, sides rounded in front, straight behind to the minute rectangular hind angles, carina rudimentary; basal sulcus fairly deep, indistinctly crenulate, vaguely interrupted, and with a small pore at middle just behind the sulcus (but unless viewed from in front the sulcus appears uninterrupted). *Elytra* ovate and moderately convex, border smooth, rounded at shoulder and extending inwards a little beyond hind angles of prothorax; two moderately deep impunctate dorsal striæ, 1 entire, 2 extending rather beyond dorsal pores, a suggestion only of stria 3, 8 entire, striae of medium length, curved, on middle of elytron, the pore at its middle; dorsal pores distinct, on the inside of site of stria 3, at a fourth and three-fifths. No microsculpture. Prosternum depressed, metasternal process bordered, with a transverse groove behind it.

Length, 2.75 mm.

Distribution. MADRAS: Malabar, Cannanore (A. K. W. Downing).

Type in my collection.

448. *Tachys pallidicornis*, Andr.

Tachys pallidicornis Andrewes, Revision, 1925, p. 443.

Colour black, underside piceous red; antennæ, legs, and two small transverse spots on each elytron ferruginous.

Head with short, fairly deep furrows, indistinctly duplicated, diverging slightly behind; mentum without pores; eyes moderately prominent; antennæ rather short and stout, joints 2 and 3 equal. *Prothorax* subcordate, a little more than a third wider than long, base rather wider than apex, sides rounded in front, straight behind, but sharply sinuate close to hind angles, which form on each side a rectangular tooth, with a clearly marked carina; median line fine, basal sulcus fairly deep, smooth, interrupted, and with an elongate pore at middle. *Elytra* moderately convex, ovate, border smooth, subangulate at shoulder, and extending inwards well beyond hind angles of prothorax; two moderately deep crenulate dorsal striæ, 1 reaching apex but stopping at about a sixth from base, 2 shortened at both ends but reaching beyond the dorsal pores, 8 deep throughout, striae rather

short but deep, on middle of elytron, the pore half-way along it; dorsal pores distinct, on site of stria 3, at a third and three-fifths. No microsculpture. Prosternum deeply sulcate, metasternal process depressed at extremity, a deep arcuate groove behind it; protarsi ♂ with two barely dilated joints.

Length, 2.7 mm.

Distribution. BOMBAY: Khandesh (*T. R. D. Bell*).

Type in my collection. This is the only example seen.

449. *Tachys tagax*, *Andr.*

Tachys tagax Andrewes, Revision, 1925, p. 444; id., Ent. Month. Mag. 1926, p. 67.

Colour black, sometimes faintly æneous, apex of elytra reddish, underside piceous; antennæ, palpi, and legs flavous.

Head with short, parallel, more or less duplicated furrows; mentum without pores; eyes hardly prominent; apical half of antennæ submoniliform, joints 2 and 3 equal. *Prothorax* convex, a half wider than long, base wider than apex, sides rounded in front and sinuate at a little distance from base, marginal channel fairly wide, hind angles right, with a distinct carina; basal sulcus deep, a little uneven at bottom, but not crenulate, interrupted, and with an elongate pore at middle. *Elytra* with the border smooth, angulate at shoulder, and extending inwards and backwards beyond hind angles of prothorax; two very indistinctly crenulate striæ, 1 reaching apex but not base, 2 extending a little beyond the dorsal pores, 8 deep throughout, striae short but deep, on middle of elytron, the pore half-way along it; dorsal pores small, on site of stria 3, at about a fourth and a half. No microsculpture. Prosternum sulcate, metasternum with an arcuate groove in front.

Length, 2.25–2.75 mm.

Distribution. UNITED PROVINCES: West Almora, Naini-Tal, Ranikhet, Haldwani (Nandhaur River), Sarju Valley, and Upper Gumti Valley (all *H. C. Champion*); Dehra Dun (Kaligad), Mussooree (Mossy Falls and Kemti Falls), Siwalik Hills, Arni Gad, Tehri-Garhwal (Aglar River) (all *M. Cameron*); Chaubattia (*S. R. Archer*). SIKKIM: Tista Valley, Tarkhola, and Rangit River (all *H. Stevens*).

Type (Tarkhola) in my collection.

450. *Tachys stevensi*, *Andr.*

Tachys stevensi Andrewes, Revision, 1925, p. 445.

Colour black, without æneous tinge or iridescence; palpi, antennæ (slightly darker towards apex), and two fairly large spots on each elytron ferruginous, venter red.

Head rather narrow, frontal furrows short and straight, hardly duplicated; mentum without pores; eyes prominent; antennæ filiform, joint 2 hardly shorter than 3. *Prothorax* convex, transverse, base wider than apex, sides rather strongly rounded, sinuate at a little distance from base, hind angles right, with a short carina; basal sulcus deep, not crenulate, rather widely interrupted, and with a pore at middle. *Elytra* convex, ovate, with a smooth rounded border, extending inwards well beyond hind angles of prothorax; two fairly deep, vaguely crenulate, dorsal striæ, 1 reaching apex but terminating a little before base, 2 ending abruptly just before the front dorsal pore but extending backwards beyond the hind one, 8 deep throughout, striae fairly deep, on middle of elytron, the pore half-way along it; dorsal pores rather small but distinct, at a third and just behind middle, on the site of stria 3. No microsculpture. Prosternum deeply sulcate; metasternum with an arcuate groove in front; protarsi ♂ with two hardly dilated joints.

Length, 2.75–3.25 mm.

Distribution. TEHRI STATE: Aglar River (*M. Cameron*). PUNJAB: Simla Hills, Barogh (*N. Annandale*); Kangra (*G. Babault*). UNITED PROVINCES: West Almora, Naini-Tal, Swal River basin, Haldwani, and Khaula (*H. G. Champion*); Bhim Tal (*N. Annandale*); Dehra Dun, Thanu River (*C. F. C. Beeson*), New Forest (*J. C. M. Gardner*), Lachiwala (*H. G. Champion*). BIHAR: Barwa (*Cardon*). ORISSA: Singbhum (*C. F. C. Beeson*). BENGAL: Gopaldhara (*H. Stevens*). EASTERN DUARS (*H. Stevens*).

Type in my collection.

In two examples taken by Mr. L. Fea in the Karen Hills, and now in the British Museum, the elytral spots are rather vague, and the second stria is rather longer at both ends.

451. *Tachys vafer*, sp. nov.

Colour black above, brown beneath; palpi, joints 1 to 4 of antennæ, and legs flavous; rest of antennæ ferruginous; each elytron with two small, round, red spots, the front one just behind shoulder, the hind one near apex.

Head with fairly deep, duplicated furrows, reaching mid-eye level; mentum without pores; eyes only moderately prominent; antennæ slightly dilated at apex, joint 2 barely shorter than 3. *Prothorax* convex, cordate, two-fifths wider than head and as much wider than long, base a little wider than apex, sides strongly rounded, sinuate near base, hind angles right and sharp, with a short but distinct carina; median line very faint, basal sulcus deep, not crenulate, interrupted, and with a large pore at middle. *Elytra* convex, ovate,

border smooth, hardly angulate at shoulder, extending inwards somewhat beyond hind angles of prothorax; two rather indistinctly crenulate dorsal striæ, 1 reaching apex but in front only reaching a point halfway between front dorsal pore and base, 2 extending back well beyond the second dorsal pore, but barely reaching the level of the first dorsal pore in front, though when viewed sideways extending a little beyond it, 8 deep throughout, striae not very long, on middle of elytron, the pore half-way along it; dorsal pores small but conspicuous, on site of stria 3, at about a third and three-fifths respectively. No microsculpture. Prosternum sulcate; metasternum with a deep arcuate groove in front.

Length, 3.2 mm.

Distribution. CENTRAL PROVINCES: Mandla, Ramgar, Kanha (B. M. Bhatia).

Type in the British Museum; co-types in the Forest Research Institute, Dehra Dun, and in my collection.

452. *Tachys nilgirieus*, Andr.

Tachys nilgirieus Andrewes, Revision, 1925, p. 446.

Colour black, sometimes faintly æneous, but without iridescence; antennæ and palpi flavous, elytra each with two rather small ferruginous spots.

Head rather narrow, with more or less duplicated furrows, the inner ones short and straight; mentum without pores; eyes moderately prominent; antennæ filiform, joints 2 and 3 equal. *Prothorax* convex, cordate, base a little wider than apex, sides rounded in front and sinuate behind at a little distance from base, hind angles slightly acute, with a small carina; basal sulcus deep but not crenulate, interrupted at middle, the median pore exceptionally large. *Elytra* convex, ovate, border smooth, slightly angulate at shoulder, extending inwards a little beyond hind angles of prothorax; two dorsal striæ, not crenulate, rather shallow, straight, and close together, 1 reaching apex but not base, 2 extending beyond the dorsal pores but only faintly impressed before the front one, 8 deep throughout, striae fairly long, on middle of elytron, the pore at its middle; dorsal pores at a third and two-thirds on site of stria 3. No microsculpture. Prosternum sulcate; metasternum with an arcuate groove in front.

Length, 3-3.5 mm.

Distribution. MADRAS: Nilgiri Hills, Bhavani Valley and Kallar (H. L. Andrewes). MYSORE: Teppukadu (H. L. Andrewes).

Type in my collection.

452 a. *Tachys nilgirieus* var. *unisculptus*, *Andr.*

Tachys nilgirieus Andrewes var. *unisculptus* Andrewes, Revision, 1925, p. 446.

Similar to the type-form excepting that stria 2 is obsolete.

Distribution. MADRAS: Nilgiri Hills (*H. L. Andrewes*). CEYLON: Kanthalay and Trincomali (*W. Horn*).

Type in my collection. The examples from Ceylon are in the Deutsches Entomologisches Museum, Berlin, and in the Brussels Museum respectively.

453. *Tachys nannodes*, *Andr.*

Tachys nannodes Andrewes, Revision, 1925, p. 447.

Colour black, both faintly æneous and iridescent; antennæ and palpi flavous, each elytron with two small, vague, reddish spots, the whole apical area often vaguely red.

Head with short duplicated furrows, inner ones diverging slightly behind, outer ones generally indistinct; mentum without pores; eyes moderately prominent; antennæ short but filiform, joint 2 hardly shorter than 3. *Prothorax* convex, a half wider than long, base wider than apex, sides rounded in front and sinuate at a little distance from base, hind angles right, with a distinct carina; basal sulcus deep, indistinctly crenulate, interrupted, the two parts ending inwardly in a slight punctiform depression on each side of an elongate central pore. *Elytra* short and convex, border smooth, forming a very wide angle at shoulder; two faintly crenulate dorsal striæ, 1 reaching apex but barely longer than 2 in front, both when viewed from above appearing to terminate just in front of the first pore, though viewed sideways they can be traced nearer to base, 2 extending beyond the second pore, 3 when viewed sideways visible, though scarcely impressed, almost to base, 8 deep throughout, striae on middle of elytron, the pore half-way along it; dorsal pores on stria 3 at a third and just behind middle. No microsculpture. *Prosternum* sulcate; *metasternum* with an arcuate groove in front; *protarsi* ♂ with two slightly dilated joints.

Length, 2.5–2.75 mm.

Distribution. UNITED PROVINCES: Mussooree, Arni Gad (*M. Cameron*). BOMBAY: Belgaum (*H. E. Andrewes*). MADRAS: Nilgiri Hills (*H. L. Andrewes*).

Type in my collection.

454. *Tachys vagabundus*, sp. nov.

Colour piceous; palpi, antennæ, and legs pale ferruginous; femora a little darker, elytra each with a small apical reddish spot, occasionally wanting.

Head with short, parallel, duplicated furrows; mentum without pores; eyes not very prominent; antennæ filiform, joints 2 and 3 equal. *Prothorax* convex, cordate, a half wider than head and as much wider than long, base much wider than apex, sides well rounded in front and gently sinuate before base, with a fairly wide marginal channel, hind angles right, sharp, and with a short but distinct carina; median line fine in front, deeper behind, where it forms more or less of a pore, separating the two parts of the basal sulcus, which is fairly deep, not crenulate, basal foveæ deep, adjoining the angles. *Elytra* convex, oval, the border smooth, forming an indistinct angle at shoulder and extending inwards and a little backwards beyond the hind angles of the prothorax; two fairly deep indistinctly crenulate striæ, 1 reaching apex, but when viewed from above terminating before base, though viewed sideways it can be traced to base, 2 extending beyond the dorsal pores in both directions, 3 just visible between the dorsal pores, 8 deep throughout, striae short but deep, nearly straight, on middle of elytron, the pore half-way along it; dorsal pores small, on the site of stria 3, at about a third and three-fifths. No microsculpture. Prosternum sulcate; metasternum with an arcuate groove in front.

Length, 2.6 mm.

Distribution. TEHRI STATE: Aglar River (*M. Cameron*). UNITED PROVINCES: Haldwani (*H. G. Champion*); Dehra Dun, Kaligad, and Mussooree, Mossy Falls (*M. Cameron*). ASSAM: Cachar, Haflong (*C. F. C. Beeson*).

Type (Aglar River) in the British Museum; co-types in the Forest Research Institute, Dehra Dun, in Mr. Champion's collection, and in my collection.

455. *Tachys salemus*, *Andr.*

Tachys salemus Andrewes, Entomological Investigations on the Spike Disease of Sandal, (8) Carabidæ, Ind. For. Rec. xviii, pt. v, 1933, pp. 3 and 6, t. 1, f. 6.

Colour black; joints 1 to 4 of the antennæ, palpi, legs, and two fairly large spots on each elytron ferruginous to flavous; joints 5 to 11 of the antennæ fuscous.

Head with duplicated frontal furrows, the inner pair shorter than the outer; mentum without pores; eyes prominent; antennæ stout but not moniliform, joints 2 and 3 of equal length. *Prothorax* convex, a half wider than long, base a little wider than apex, sides rounded in front and sinuate at a little distance from base, hind angles right, with a distinct carina; basal sulcus deep, rather indistinctly crenulate, interrupted on each side of the central pore with which the fine median line terminates. *Elytra* short and convex, border

forming a scarcely perceptible angle at shoulder; two faintly crenulate dorsal striæ, 1 reaching apex and a little longer than 2 in front, where both terminate not far in front of the first pore, 2 extending a little way behind the second pore, 3, when viewed sideways, just visible between the two pores, 8 deep throughout, stria on the middle of the elytron, the pore within it

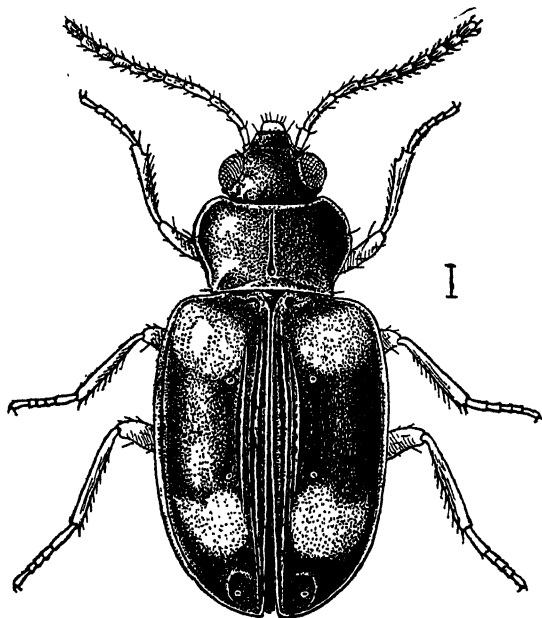


Fig. 44.—*Tachys salemus* Andrewes.

and half-way along it; dorsal pores on stria 3 at a third and three-fifths. No microsculpture. Prosternum sulcate; metasternal process sharp, with an arcuate groove behind it.

Length, 3-3.2 mm.

Distribution. MADRAS: North Salem, Jawalagiri.

Type in the British Museum; co-type in the Forest Research Institute, Dehra Dun. Both examples are ♀.

456. *Tachys politus*, Motch.

Tachys politus Motschulsky, Bull. Mosc. 1851, ii, p. 509; id., Études Ent. xi, 1862, p. 55; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 743; Bouchard, Ann. Soc. Ent. Fr. 1903, p. 170; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 199; id., Trans. Ent. Soc. Lond. 1921, p. 146; id., in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya,

- 1914, par Guy Babault, Carab. 1924, p. 19; id., Revision, 1925, p. 448, t. 3, f. 8, and t. 4, ff. 23, 29, 32, 36, 37, and 40; id., Trans. Ent. Soc. Lond. 1928, p. 5; id., Tijdschr. Ent. lxxii, 1929, p. 307; id., Ind. For. Rec. xviii, pt. v, 1933, p. 2.
- Bembidium ebeninum* Nietner, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 424.
- Tachys bioculatus* Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 743; Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 153; id., Ann. Mus. Civ. Gen. xxvii, 1889, p. 105; id., Compt. rend. Soc. Ent. Belg. 1891, p. 326; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 293.

Colour dark æneous and slightly iridescent above, piceous beneath, venter dark red; elytra each with an ill-defined

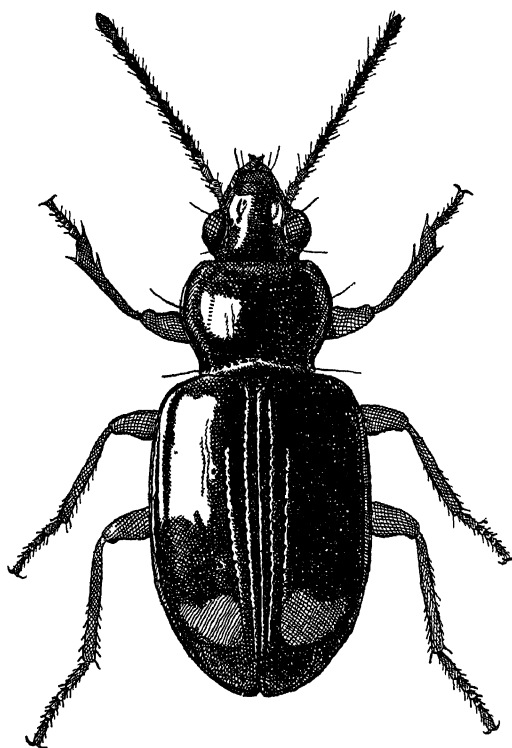


Fig. 45.—*Tachys politus* Motschulsky.

spot near apex, and apical border, reddish; joints 1 and 2 of antennæ, with base of 3 and 4, greater part of palpi, and legs flavous; rest of antennæ, and penultimate joint of palpi fuscous.

Head with feebly duplicated furrows, inner ones short and parallel; mentum without pores; eyes moderately prominent; antennæ fairly long, slightly dilated towards apex, joint 2 a little shorter than 3. *Prothorax* convex, twice as wide as long, base hardly wider than apex, sides strongly rounded, sinuate quite close to base, hind angles right and sharp, with a short distinct carina; median line fine, basal sulcus deep, crenulate, interrupted, and with a large pore at middle, the foveæ deep. *Elytra* ovate, moderately convex, border smooth, extending inwards a little beyond hind angles of prothorax and forming a very obtuse angle at shoulder; two dorsal striæ, slightly crenulate and arcuate (convex outwards), 1 reaching apex but stopping a little short of base, 2 extending rather beyond dorsal pores, 3 sometimes just visible, 8 deep throughout, striae not very long, curved, on middle of elytron, the pore half-way along it; dorsal pores conspicuous, on site of stria 3, at basal third, and a little behind middle. A microsculpture of fine transverse lines is usually just visible on the prothorax and elytra; on the head there is a reticulation of nearly isodiametric meshes, the lines of which are very faintly impressed. Prosternum sulcate; metasternal process with an arcuate groove behind it; protarsi ♂ with two slightly dilated joints.

Length, 3-3.5 mm.

Distribution. SOUTH-EAST ASIA. Abundant nearly everywhere, but not extending to Japan or Australia.

Type in the Moscow University Zoological Museum; that of *ebeninus* in the Berlin Zoological Museum; that of *bioculatus*, formerly in the Brussels Museum, cannot now be found there.

In typical specimens from Burma the prothorax is very wide and strongly contracted behind, the elytral striæ fairly deep, curved, and somewhat widely separated. In some Indian examples the prothorax is narrower and only moderately contracted behind, while the elytral striæ are shallower, a little straighter, and nearer together. There are, however, so many intermediate forms that all are here treated as belonging to one species.

456 a. *Tachys politus* var. *homostictus*, Bates.

Tachys bioculatus Putz. var. *homostictus* Bates, Ann. Mus. Civ. Gen. xxxii, 1892, p. 293.

Tachys politus Motch. var. *homostictus* Andrewes, Revision, 1925, p. 449.

This differs only from the type-form in the presence of a spot on the shoulder in addition to that at apex.

Type in the Genoa Civic Museum.

456 b. *Tachys politus* var. *aspilotus*, *Andr.*

Tachys politus Motch. var. *aspilotus* Andrewes, Revision, 1925, p. 449.

In this form the spot has disappeared altogether, leaving only the apical border reddish.

Type in my collection.

457. *Tachys charactus*, *Andr.*

Tachys charactus Andrewes, Revision, 1925, p. 451.

Colour black, shiny, elytra each with two ferruginous spots, the base and apex sometimes reddish; joints 1 and 2 of antennæ (rest fuscous), and legs flavous.

Head with indistinctly duplicated furrows, inner ones fairly deep, short and parallel; mentum without pores; eyes not prominent; antennæ short, rather dilated at apex, joints 2 and 3 equal. *Prothorax* convex, just over a third wider than long, equally contracted at extremities, sides narrowly bordered, strongly and evenly rounded, and sinuate just before base, the hind angle on each side formed by a small, sharp, nearly rectangular tooth, with only a slight carina; median line obsolete, basal sulcus deep, finely crenulate, widely interrupted, and with a pore at middle. *Elytra* convex, the border smooth and rounded, just reaching hind angles of prothorax; two deep, crenulate, dorsal striæ, 1 reaching apex but not quite reaching base, 2 slightly arcuate, extending well beyond dorsal pores, 8 deep throughout, striae short and nearly straight, rather nearer margin than suture, the pore a little in front of middle; dorsal pores at a third and just behind middle, on site of stria 3. No microsculpture. Prosternum sulcate, metasternal process with a deep arcuate groove.

Length, 2.9 mm.

Distribution. UNITED PROVINCES: West Almora, Tanakpur, Haldwani, Swal River basin (all *H. G. Champion*). BURMA: Prome (*G. Q. Corbett*).

Type in the British Museum.

458. *Tachys babaulti*, *Andr.* [Plate IV, fig. 7.]

Tachys babaulti Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 87, t. 2, f. 1; id., Revision, 1925, p. 452.

Colour bronze-black, iridescent; joints 1 to 3 of antennæ (rest brown), and legs ferruginous.

Head with the frontal furrows short and not very deep, hardly duplicated; mentum without pores; eyes moderately

prominent; antennæ filiform, joints 2 and 3 equal. *Prothorax* convex, a little more than a third wider than long, base a trifle wider than apex, sides evenly rounded, sinuate just in front of hind angles, which are sharp and rectangular, with a short carina; median line fine but visible, basal sulcus fairly deep, finely crenulate, interrupted, and with a rather shallow pore at middle. *Elytra* moderately convex, border smooth, extending inwards rather beyond hind angles of prothorax; two dorsal striæ, finely crenulate and disappearing very gradually in front, 1 reaching apex but not quite reaching base, 2 extending well beyond dorsal pores and nearly as long as 1 in front, 3 and even 4 visible but hardly impressed, 8 deep throughout, striae on middle of elytron, the pore half-way along it; dorsal pores distinct, on stria 3, at a third and three-fifths. The fine transverse lines of the microsculpture are just visible on prothorax and elytra, more visible on the back of the head, while on the front there is a distinct, if fine, isodiametric reticulation. Metasternal process with a rather shallow arcuate groove.

Length, 2.5 mm.

Distribution. PUNJAB: Lyallpur (K. N. Trehan). UNITED PROVINCES: Dehra Dun, New Forest, and Asan River (J. C. M. Gardner), Dobhalwala; Haldwani (H. G. Champion). CENTRAL PROVINCES: Nagpur (E. A. D'Abreu); Motinala (G. Babault); Hoshangabad, Rahatgaon (S. N. Chatterjee). INDORE: Mhow, Khurda. BOMBAY: Poona (G. E. Bryant); Matheran and Lonauli (L. Biró). MADRAS: Madras (F. H. Gravely); Nilambur, Nedungyam (S. N. Chatterjee).

Type in my collection.

459. *Tachys championi*, Andr.

Tachys championi Andrewes, Revision, 1925, p. 453.

Colour black, iridescent, without any æneous tinge; joints 1 to 4 of antennæ (rest brown), palpi, legs, and two fairly large spots on each elytron ferruginous, underside piceous red.

Head with the inner furrows short and straight, the outer ones obsolete; mentum without pores; eyes moderately prominent; antennæ short, joints 2 and 3 equal. *Prothorax* moderately convex, transverse, base a little wider than apex, sides rather gently rounded, sinuate not far from base, hind angles right, with a small carina; basal sulcus not very deep, distinctly though finely crenulate, interrupted and with a pore at middle. *Elytra* moderately convex, with a smooth border, rounded at shoulder; two finely crenulate dorsal striæ, not deeply impressed or ending abruptly, 1 reaching apex but not base, 2 extending beyond dorsal pores, 3 just visible on middle of disk, 8 deep throughout, striae slightly

curved, on middle of elytron, the pore half-way along it; dorsal pores small but distinct, at a third and two-thirds, on stria 3. Microsculpture hardly appreciable on the prothorax and elytra; visible but faint on the head, the meshes isodiametric. Prosternum sulcate; metasternum with an arcuate groove in front; protarsi ♂ with two very slightly dilated joints.

Length, 2.75–3.25 mm.

Distribution. UNITED PROVINCES: West Almora, Ranikhet, and Haldwani (*H. G. Champion*); Kathgodam (*S. W. Kemp*); Siwalik Hills (*M. Cameron* and *H. G. Champion*); Dehra Dun and Asan River (*J. C. M. Gardner*), Hathibarkala, Mothrawala, and Dhobalwala. BENGAL: Gopaldhara (*H. Stevens*); Nurbong (*W. K. Webb*); Ghum (*M. Cameron*). EASTERN DUARS (*H. Stevens*).

Type in my collection.

460. *Tachys charis*, *Andr.*

Tachys ornatus Putzeys (not Nietner, not Apetz), *Ann. Mus. Civ. Gen.* vii, 1875, p. 741.

Tachys scydmaenoides Bates (not Nietner), *Ann. Mag. Nat. Hist.* (5) xvii, 1886, p. 154; *id.*, *Compt. rend. Soc. Ent. Belg.* 1891, p. 326.

Tachys nietneri Bates (not Schaum), *Ann. Mus. Civ. Gen.* xxxii, 1892, p. 295.

Tachys charis Andrewes, *Revision*, 1925, p. 454.

Colour black or very dark red; antennæ, palpi, legs, and two spots on each elytron pale ferruginous.

Head with rather short, slight, duplicated furrows; mentum without pores; eyes not prominent; antennæ almost moniliform, joints 2 and 3 equal. *Prothorax* convex, not quite a half wider than long, base a shade narrower than apex, sides narrowly bordered, rounded, and rather sharply sinuate close to hind angles, which are sharp, right, and practically without carina; median line very fine, basal sulcus fairly deep, distinctly though finely crenulate, interrupted, and with a pore at middle. *Elytra* moderately convex, ovate, border smooth, rounded at shoulder, and extending inwards a little beyond hind angles of prothorax; two fine impunctate dorsal striæ, 1 entire, 2 extending beyond dorsal pores, 3 to 7 wanting, 8 deep throughout, striae slightly curved, on middle of elytron, the pore half-way along it; dorsal pores small, on site of stria 3, at a third and three-fifths. No microsculpture. Prosternum sulcate; metasternal process rather narrowly bordered, with a straight, rather shallow, transverse groove behind it.

Length, 2.2–2.7 mm.

Distribution. ORISSA : Kallikote (*N. Annandale*). CENTRAL PROVINCES : Nagpur, Ambajheri (*E. A. D'Abreu*). BOMBAY : Belgaum (*H. E. Andrewes*); Matheran (*L. Biró*). MADRAS : Ganjam, Rambha (*N. Annandale*); Nilgiri Hills, Bhavani Valley (*H. L. Andrewes*) and Hillgrove (*G. D. Bhasin*); Vizagapatam, Chipurupalli (*R. S. Patuck*). MYSORE : Chikkaballapura (*T. V. Campbell*); Teppukadu (*H. L. Andrewes*). CEYLON : Colombo (*G. Lewis*); Hambegamuwa, Kotte, and Mankulam (*G. M. Henry*); Peradeniya; "Ceylon" (*J. Nietner*).

Type in my collection.

I have seen the various examples determined by Putzeys and Bates. The species appears to replace *pæcilopterus* in Central and Southern India.

One or two of the localities mentioned in my 'Revision' proved to be inaccurate, and have been omitted here. In the specimen taken by Mr. L. Fea at Mandalay, and referred to by Bates under the name of *nietneri*, the basal sulcus of the prothorax is hardly interrupted and there is only a small pore at middle; in its size, colour, and other characters it seems more nearly allied to *charis* than to *decoratus*.

460 a. *Tachys charis* var. *rubescens*, *Andr.*

Tachys charis Andrewes var. *rubescens* Andrewes, Revision, 1925, p. 455.

Ceylon examples are usually slightly smaller (2.2 mm.) than Indian ones, chiefly red-brown in colour, with the sides of the prothorax less rounded in front and consequently less sinuate behind, so that the base is at least as wide as the apex. I have also seen a single example taken by Mr. R. S. Patuck at Vizagapatam.

Type in the British Museum.

461. *Tachys finitimus*, *Walk.*

Bembidium finitimum Walker, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 204.

Tachys finitimus Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 211; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 191; id., Revision, 1925, p. 455.

Colour black; joint 1 of antennæ, with basal half of 2, and legs ferruginous, elytra each with two large vague reddish spots, more or less joined along suture.

Head with fairly deep, duplicated furrows, inner ones very uneven; mentum without pores; eyes moderately prominent; antennæ filiform, slightly dilated at apex, joints 2 and 3 equal. *Prothorax* convex, a third wider than long, about equally contracted at extremities, sides barely sinuate close to hind

angles, which project on each side as a rectangular tooth, with only a rudimentary carina, marginal channel fairly wide; basal sulcus moderately deep, crenulate, interrupted, and with a pore at middle (indistinct in type). *Elytra* moderately convex, ovate, border smooth, subangulate at shoulder, and extending inwards very little beyond hind angles of prothorax; two dorsal striæ, not crenulate, 1 entire, 2 shorter, but extending beyond dorsal pores, 3 to 7 wanting, 8 deep throughout, striae curved, on middle of elytron, the pore half-way along it; dorsal pores rather small, on the site of stria 3, at a third and three-fifths. No microsculpture. Prosternum more or less sulcate; metasternal process vaguely bordered, deeply depressed behind extremity, a slight straight transverse groove behind it.

Length, 2.75 mm.

Distribution. CEYLON: Anuradhapura (W. Horn); "Ceylon" (J. Nietner).

Type in the British Museum.

462. *Tachys striatifrons*, Andr.

Tachys striatifrons Andrewes, Revision, 1925, pp. 407 and 456.

Colour black shiny, elytra dark red, with two paler spots on each, the front one somewhat oblique; antennæ and legs ferruginous.

Head with deep parallel inner furrows, reaching mid-eye level, bounded outwardly on each side by a rounded ridge, between which and the eye are two carinæ, so that the head is in effect quadrisulcate on each side; mentum without pores; eyes moderately prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* convex, not quite a half wider than long, sides rather strongly rounded and contracted behind, sinuate quite close to base, which is only a little wider than apex, the angles slightly obtuse but not rounded, with a slight oblique carina; marginal channel wide, basal sulcus deep, finely crenulate, interrupted, and with a pore at middle. *Elytra* convex, ovate, border smooth, rounded at shoulder and extending inwards rather beyond hind angles of prothorax; two fairly deep smooth dorsal striæ, 1 entire, 2 reaching well beyond dorsal pores, 3 to 7 wanting, 8 deep throughout, striae short, on middle of elytron, the pore half-way along it; dorsal pores on stria 3 at a fourth and three-fifths. No microsculpture. Prosternum deeply sulcate, metasternal process finely and narrowly bordered, with a deep straight transverse groove behind it.

Length, 2.15 mm.

Distribution. BURMA: Tenasserim (J. W. Helfer). SINGAPORE.

Type in my collection.

In size, form, and colour almost exactly reproducing *pæcilopterus*, but distinguished from it at once by the form of the frontal furrows.

463. *Tachys blandus*, Andr. [Plate IV, fig. 6.]

Tachys hæmorrhoidalis Bates (not Dejean), Ann. Soc. Ent. Belg. 1892, p. 230.

Tachys blandus Andrewes, in Mission dans les Provinces Centrales de l'Inde et dans la région occidentale de l'Himalaya, 1914, par Guy Babault, Carab. 1924, p. 85, t. 1, f. 8; id., Revision, 1925, p. 459; id., Ind. For. Rec. xviii, pt. v, 1933, p. 2.

Colour black above, brown beneath, the elytra faintly suffused with a deep reddish tinge; joints 1 to 3 of antennæ (rest fuscous), and legs ferruginous, the middle of femora sometimes infuscate.

Head with short, fairly deep, duplicated furrows, inner ones uneven, clypeal suture rather deep; mentum without pores; eyes moderately prominent; antennæ submoniliform, dilated at apex, joints 2 and 3 equal. *Prothorax* convex, a half wider than long, equally contracted at extremities, sides evenly rounded, not sinuate before base, the hind angles projecting on each side as a small rectangular tooth, carina rudimentary; basal sulcus moderately deep, finely crenulate; interrupted, and with a pore at middle. *Elytra* ovate, moderately convex, border smooth, rounded at shoulder and extending inwards well beyond hind angles of prothorax; two moderately deep dorsal striæ which are only microscopically crenulate, 1 entire, 2 extending beyond dorsal pores, 3 to 7 wanting, 8 deep throughout, striae rather deep, curved, on middle of elytron, the pore half-way along it; dorsal pores small, on or near the site of stria 3, at about a third and three-fifths. No microsculpture. Prosternum slightly sulcate; metasternal process rather narrowly bordered, a faint transverse groove behind it.

Length, 2.5 mm.

Distribution. PUNJAB: Salt Range, Khewra Gorge. UNITED PROVINCES: Dehra Dun, Dobhalwala, and Hathibarkala; Ranikhet, Sarda River Gorge, Haldwani, and Jaunsar (all *H. G. Champion*); Mohand Rau (*M. Cameron*); Siwalik Hills (*M. Cameron* and *H. G. Champion*). BIHAR: Ranchi (*W. H. Irvine*). REWA STATE: Dhanpuri (*C. F. C. Beeson*). CENTRAL PROVINCES: Motinala (*G. Babault*); Nagpur and Hoshangabad (*E. A. D'Abreu*). INDORE: Mhow, Khurda. BOMBAY: Khandesh (*T. R. D. Bell*); Poona (*G. E. Bryant*). COORG: Fraserpet. MADRAS: Vizagapatam, Chipurupalli (*R. S. Patuck*).

Type in my collection.

464. *Tachys eueides*, Bates.

Tachys eueides Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 153 ;
Andrewes, Revision, 1925, p. 460.

Colour black, with a faint æneous tinge, underside piceous ; antennæ and legs pale ferruginous, each elytron with two small vague reddish spots.

Head with short deep single furrows ; mentum without pores ; eyes moderately prominent ; antennæ long and filiform, joints 2 and 3 equal. *Prothorax* convex, narrow, a fourth wider than long, equally contracted at extremities, sides strongly rounded and sinuate at a little distance from base, the hind angles very sharp, a little acute and projecting, with a distinct carina, marginal channel fairly wide ; median line obsolete, basal sulcus deep, crenulate, interrupted, and with a large pore at middle. *Elytra* ovate, convex, with smooth rounded border, extending inwards a little beyond hind angles of prothorax ; two deep impunctate dorsal striæ, 1 reaching apex but not base, 2 extending beyond dorsal pores, 8 deep throughout, striae deep, slightly curved, on middle of elytron, the pore half-way along it ; dorsal pores large, on site of stria 3, at a third and three-fifths. No microsculpture. Prosteron sulcate ; metasternal process with a deep arcuate groove behind it.

Length, 3.2-3.4 mm.

Distribution. CEYLON : Dikoya (G. Lewis).

Type in the British Museum.

465. *Tachys nigellus*, sp. nov.

Colour black ; palpi, antennæ, and legs flavous, but the femora and the penultimate joint of the palpi are more or less infusate.

Head with short, but fairly deep, duplicated furrows, diverging a little behind ; mentum without pores ; eyes not prominent ; antennæ with joints 2 and 3 equal. *Prothorax* subquadrate, convex, two-fifths wider than long, base barely wider than apex, sides rounded in front, straight behind, the hind angles somewhat obtuse, the hind lateral pore on the angle and projecting as a slight tooth, a small carina present ; median line faint, basal sulcus fairly deep, crenulate, practically uninterrupted, and without evident pore at middle. *Elytra* moderately convex, subovate, border smooth, rounding shoulder and extending inwards rather beyond hind angles of prothorax ; two fairly deep, dorsal striæ, hardly visibly crenulate, 1 entire, 2 extending at each end well beyond the dorsal pores, 3 just traceable on disk by microscopic pores, 8 deep throughout, striae not very long, curved, ending in front slightly nearer margin than suture, the pore half-way along it ; dorsal pores

very small, on stria 3, at about a third and three-fifths respectively. No microsculpture. Prosternum slightly sulcate; metasternal process bordered and with a transverse groove behind it.

Length, 2.3 mm.

Distribution. MADRAS: Nilambur (*G. D. Bhasin*); Nilgiri Hills (*H. L. Andrewes*).

Type in the British Museum.

Hardly distinguishable from the Chinese *T. fuscus* Schaum except by the absence of microsculpture on the elytra.

466. *Tachys decoratus*, *Andr.*

Bembidium ornatum Nietner * (not Apetz). Ann. Mag. Nat. Hist. (3) ii, 1858, p. 426.

Tachys ornatus Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 154.

Tachys decoratus Andrewes, Revision, 1925, p. 424.

Colour brown-red, antennæ and legs flavous, two fairly large transverse spots on each elytron whitish yellow.

Head with short, slight, parallel, duplicated furrows; labrum somewhat emarginate; no pores on mentum; eyes moderately prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* rather convex, a half wider than long, about equally contracted at extremities, sides evenly rounded, hind angles obtuse, furnished with a minute tooth but no carina, so that the marginal channel runs round and joins the basal sulcus; median line fine, basal sulcus rather shallow, especially at sides, vaguely crenulate, uninterrupted, and without pore at middle. *Elytra* short, ovate, though with well marked shoulders, border smooth, rounded at shoulder and extending inwards well beyond hind angles of prothorax; two impunctate rather shallow dorsal striæ, 1 entire, 2 extending beyond dorsal pores, 8 entire, striae rather short, curved, on middle of elytron, the pore at about middle; dorsal pores small, of inner side of site of stria 3, at about a third and three-fifths. No microsculpture. Prosternum depressed, metasternal process bordered, with a straight transverse groove behind it.

Length, 2 mm.

Distribution. CEYLON: Nalanda (*W. Horn*); Colombo (*L. Biró*); Kandy (*G. Lewis*).

Type in the Berlin University Zoological Museum.

467. *Tachys elutus*, sp. nov.

Colour pale ferruginous, the elytra vaguely paler at base, and each with a distinct transverse pale spot near apex.

Head with short, duplicated furrows, diverging a little behind; mentum without pores; eyes not prominent;

antennæ rather short, joints 2 and 3 equal. *Prothorax* convex, subquadrate, two-fifths wider than long, base hardly wider than apex, sides rounded in front, straight behind, the hind angles obtuse but furnished each with a minute rectangular tooth and a rudimentary carina; median line extremely fine, basal sulcus moderately deep, crenulate, practically uninterrupted, though with a minute pore at middle. *Elytra* convex, ovate, a fourth wider than prothorax, two-fifths longer than wide, border smooth, rounding shoulder and extending inwards a little beyond hind angles of prothorax; two vaguely crenulate and not very deep dorsal striæ, 1 entire, 2 extending each way a little beyond the dorsal pores, 3 and 4 just traceable, 8 entire, striae short, slightly curved, ending on middle of elytron, the pore a little before middle; two very small dorsal pores on the site of stria 3 at about a third and three-fifths respectively. No microsculpture. Prosternum slightly sulcate; metasternal process with a curved groove, distant from the extremity, and another shallower, straight, transverse one behind it.

Length, 1.85 mm.

Distribution. BURMA: Mintha Sakan, in the Tavoy district (R. N. Parker); Tenasserim (J. W. Helfer).

Type in the British Museum. The type and co-type are the only two examples seen; the latter is in the Prague Museum.

468. *Tachys thlibodes*, sp. nov.

Colour piceous, palpi, antennæ, legs, and apical third of elytra more or less ferruginous.

Head convex, with short, deep, straight furrows, a short carina on each side between furrow and eye, but nearer the latter; mentum without pores; eyes small but moderately prominent; antennæ moniliform, joints 2 and 3 equal. *Prothorax* convex, cordate, a half wider than head and as much wider than long, base wider than apex, sides well rounded in front, sinuate near base, hind angles right, with a well marked carina; median line fairly deep, forming an elongate fovea at base, and separating the two parts of the basal sulcus, which is very deep and not crenulate. *Elytra* convex, oval, two-fifths wider than prothorax and as much longer than wide, border smooth, forming an obtuse angle at shoulder, exactly opposite the hind angle of the prothorax, and extending inwards and backwards to the site of stria 4; stria 1 deep, impunctate, striæ 2, 3, and even 4 just traceable but not impressed, 8 deep throughout, striae rather short, slightly curved, ending on middle of elytron, the pore half-way along it; two large dorsal pores on stria 3 at about a fourth and

a half respectively, and a large umbilicate pore at the bottom of a small rounded fovea on each side of scutellum. No microsculpture. Prosternal process sulcate; metasternal process bordered, its extremity at a little distance from the furrow which forms the border; last ventral segment slightly setulose.

Length, 2.4 mm.

Distribution. BENGAL: Ghum district (*M. Cameron*).

Type in the British Museum. This is at present unique.

469. *Tachys suturalis*, *Moich.*

Tachys suturalis Moichulsky*, Bull. Mosc. 1851, ii, p. 508; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 746; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 198; id., Revision, 1925, p. 104; id., Trans. Ent. Soc. Lond. 1928, p. 4.

Colour dark ferruginous, underside more or less piceous; joints 1 to 4 of antennæ, palpi, and legs lighter, elytra also a little lighter, but with the sutural area more or less widely infusate.

Head with indistinctly duplicated, parallel furrows, inner ones widening inwardly behind into two foveæ; mentum without pores; eyes rather flat; antennæ with joints 2 and 3 equal. *Prothorax* convex, hardly more than a third wider than long, base a little wider than apex, sides gently rounded in front, sinuate at a little distance from base, marginal channel fairly wide, hind angles right, with a very rudimentary carina; median line obsolete but visible towards base, basal sulcus not very deep, a little uneven, but not crenulate, rather widely interrupted at middle, with only a slight narrow pore formed by the end of the median line. *Elytra* elongate-ovate, moderately convex, border smooth, turning the shoulder rather sharply, though hardly angulate, and extending rather beyond hind angles of prothorax; stria 1 entire, moderately impressed and very vaguely crenulate, 8 deep throughout, 2 just traceable, the rest wanting, apical stria rather short and straight, ending on middle of elytron, the pore a little nearer front than apex; dorsal pores rather small, on site of stria 3, at a third and just behind middle. No visible microsculpture. Prosternum sulcate; metasternum also sulcate, without transverse groove, the process unbordered but depressed; protarsi ♂ with two slightly dilated joints.

Length, 2.5–3 mm.

Distribution. TENASSERIM (*J. W. Helfer*).

Type in the Moscow University Museum.

Several reputed "co-types" of this species are to be found in various European museums, including the British Museum,

the Berlin University Zoological Museum, the Deutsches Entomologisches Museum, the Brussels Museum, and the Copenhagen Museum, while in the Prague Museum there is a very long series of specimens taken nearly a hundred years ago by J. W. Helfer. It is known that Motchulsky received a good deal of material from Prague, and it is extremely probable that all the known specimens came from Helfer's collection; the locality given, though probably correct, must be accepted with some reserve, for Helfer also collected in Bengal and Sikkim.

470. *Tachys unitarius*, Bates.

Tachys unitarius Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 296;
Andrewes, Revision, 1925, p. 425.

Colour dark red, with two large pale spots on each elytron; antennæ, palpi, and legs ferruginous.

Head with very short, duplicated furrows; mentum without pores; eyes moderately prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* convex, a half wider than long, base a shade wider than apex, sides gently rounded, not sinuate behind, hind angles slightly obtuse, with a short carina, marginal channel rather wide; basal sulcus moderately deep, finely crenulate, uninterrupted, and without pore at middle. *Elytra* moderately convex, ovate, border smooth, rounded at shoulder and extending inwards very little beyond hind angle of prothorax; sutural stria only present, not crenulate, entire but shallow, 2 just visible, 3 to 7 wanting, 8 deep throughout, striae rather short and nearly straight, nearer margin than suture, the pore a little in front of middle; dorsal pores very small, on stria 3, at a third and rather behind middle. No microsculpture. Prosternum sulcate; metasternal process bordered and with a shallow groove behind it.

Length, 2.1–2.3 mm.

Distribution. ASSAM: Garo Hills, above Tura (*S. W. Kemp*). BURMA: Palon in Pegu and Karen Hills (*L. Fea*); Tavoy, Maungmagan (*R. N. Parker*); Tenasserim (*J. W. Helfer*).

Type in the Genoa Civic Museum.

470 a. *Tachys unitarius* var. *scotodes*, var. nov.

The examples from the Karen Hills and Tavoy, as also a third example, labelled "Burma," in my collection, differ in colour from the type-form (Palon) described above, being black with two vague dark red spots on each elytron. The type of the variety is in my collection.

a little narrower than apex, sides strongly rounded, marginal channel widened at middle, hind angles projecting on each side as an acute tooth, at some distance from the elytra, with a well marked carina, sides of base very oblique and not in contact with the elytra; median line faint, basal sulcus finely crenulate, neither very deep nor distant from the margin, parallel throughout with the apparent base, hardly interrupted, and without any distinct pore at middle. *Elytra* convex, ovate, border smooth, rounded at shoulder, and disappearing long before reaching the apparent base; only one, rather shallow, impunctate dorsal stria, not nearly reaching base, 8 deep throughout, striole slightly curved, on middle of elytron, the pore half-way along it; two dorsal pores on site of stria 3, close to base and at three-fifths. No microsculpture. Prosternum sulcate; metasternal process narrowly bordered; last ventral segment ♀ with the four pores in line; ♂ protarsi with two slightly dilated joints.

Length, 2.5 mm.

Distribution. ASSAM: Tezpur (*S. W. Kemp*). BENGAL: Darjeeling. BIHAR: Ranchi (*W. H. Irvine*). CENTRAL PROVINCES: Nagpur (*E. A. D'Abreu*). BOMBAY: Belgaum, Khanapur, and Parle (*H. E. Andrewes*). MADRAS: Madras (*F. H. Gravely*). CEYLON: Anuradhapura (*W. Horn*). SOMALILAND. KENYA.

Type in my collection.

471 a. *Tachys comptus* var. *borealis*, *Andr.*

Tachys comptus Andrewes var. *borealis* Andrewes, Revision, 1925, p. 462; id., Ent. Month. Mag. 1926, p. 67.

The examples to which this name is applied differ from the type-form in having three pores on interval 3, the second placed not far behind the first.

Distribution. BENGAL: Gopaldhara (*H. Stevens*). BIHAR: Barwa (*Cardon*). UNITED PROVINCES: Dehra Dun (*M. Cameron* and *S. N. Chatterjee*); Jhajra (*J. C. M. Gardner*); Anarwala; Sarju Valley (*H. G. Champion*). MADRAS: Anaimalai Hills (*J. C. M. Gardner*). FORMOSA.

Type in my collection.

The specimens from Jhajra were found by Mr. Gardner in a nest of *Termes* (*Cyclotermes*) *obesus* Ramb.

471 b. *Tachys comptus* var. *pluripunctus*, *Andr.*

Tachys comptus Andrewes var. *pluripunctus* Andrewes, Revision, 1925, p. 462, t. 3, f. 10.

This form is darker than the type, with very little red at the base of the elytra, the spots smaller, more transverse,

and more clearly defined. The chief character which distinguishes this variety is the presence of numerous dorsal pores which vary a little both in number and position; there are approximately four pores on the site of stria 3 (two close to base), one on 4 (near the front end of the stria), three on 5 (one close to base), and one on 7, all fairly conspicuous.

Distribution. UNITED PROVINCES: West Almora (*H. G. Champion*).

Type in the British Museum.

Key to the ovatus-group.

- | | |
|--|--|
| 1 (2) Elytra with two dorsal pores only, two reddish spots on each elytron..... | <i>ovatus</i> , Metch., p. 284. |
| 2 (1) Elytra with more than two dorsal pores. | |
| 3 (4) Elytra with rows of few pores on intervals 3 and 5, colour black without spots | [Andr. *, p. 286.
<i>ovatus</i> var. <i>obliteratus</i> , |
| 4 (3) Elytra with rows of numerous pores on intervals 3 and 5, two reddish spots on each elytron | <i>elegans</i> , Andr., p. 286. |

472. *Tachys ovatus*, Metch.

Lopha ovata Metchulsky *, Bull. Mosc. 1851, ii, p. 509.

Tachys albicornis Schaum *, Berl. Ent. Zeitschr. 1860, p. 199; Metchulsky, Études Ent. xi, 1862, pp. 27 and 55.

Tachys mirabilis Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 294; Dupuis, Ann. Soc. Ent. Belg. 1913, p. 175; Andrewes, Trans. Ent. Soc. Lond. 1921, p. 146.

Tachys mirandus Dupuis *, Ann. Soc. Ent. Belg. 1913, p. 170.

Tachys ovatus Andrewes, Trans. Ent. Soc. Lond. 1919, p. 198; id., Ann. Mag. Nat. Hist. (9) xiii, 1924, p. 468; id., Revision, 1925, p. 463, t. 3, f. 9; id., Trans. Ent. Soc. Lond. 1928, p. 5; Alluaud, Afra, ii, 1930, p. 14.

Colour piceous black; two rather large vague spots on each elytron, one just below shoulder and the other at apical third, apex of elytra and venter reddish; palpi and legs ferruginous, antennæ with joints 1 and 2 ferruginous, 7 to 11 white, the four intervening joints usually fuscous, but 5 and 6 are often lighter.

Head with duplicated furrows, a slight ridge on each side separating the two parts, the inner ones wide and shallow but with an impressed line at bottom, outer ones narrow, a depression between front and vertex; mentum without pores; eyes rather prominent; antennæ with joints 2 and 3 approximately equal. *Prothorax* cordate, nearly as long as wide, the sides rather gently rounded, marginal channel wide at middle, narrowing at extremities, a tubercle bearing the hind seta projecting laterally in front of the inconspicuous

* The variety has not yet been met with in the Indian region.

hind angles ; median line obsolete, basal sulcus wanting, the foveæ deep, semicircular (convex inwards), bounded on each side by a carina. *Elytra* convex, ovate, border smooth, disappearing just behind shoulder, where there is an indentation, with a rounded tooth in front of it, the border continuing inwards to a point opposite the hind angles of the prothorax ; striae 1 and 8 entire and impunctate, the remainder wanting,

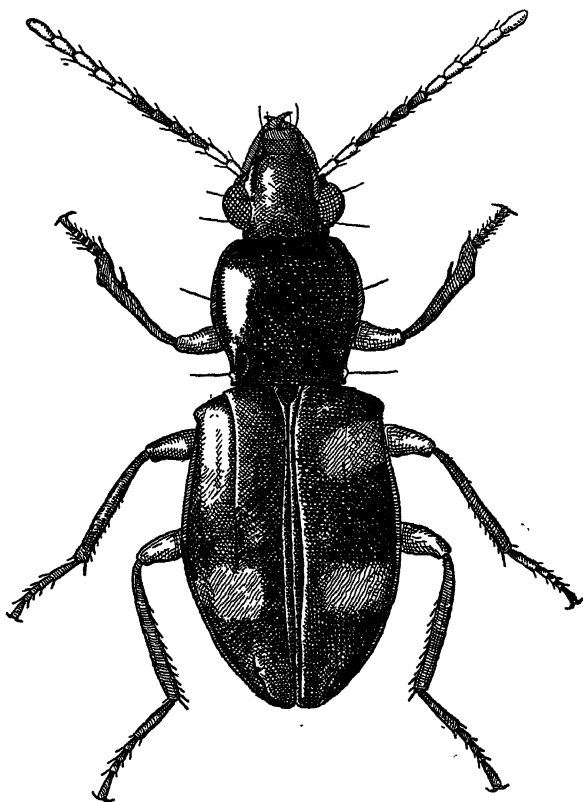


Fig. 47.—*Tachys ovatus* Metchulsky.

1 approaching suture near base and then curving outwards to the basal pore, an additional stria (the basal portion of 4 or 5), with its inner side slightly carinate, running from the base down the middle of the elytron, sometimes very short, but generally extending to a third or even a half, curving outwards at base and forming a small tooth at the point where the border terminates ; apical striole short and slight, the pore a little before middle ; two small dorsal

pores on the site of stria 3, one close to base, the other at about middle. Surface smooth, without evident micro-sculpture. Prosternum not sulcate; metasternal process narrowly bordered; protarsi ♂ with two slightly dilated joints.

Length: 2.5–2.8 mm.

Distribution. ASSAM: Patkai Mountains and Assam Valley. CEYLON: Negombo (*W. Horn*). BURMA: Bhamo and Kaw-kareik (*L. Fea*); Moulmein (*Fieber*); Tavoy; "Tenasserim" (*J. W. Helfer*). SUMATRA. MALAY STATES. CHINA. FORMOSA. PHILIPPINE IS. CELEBES.

Type in the Moscow University Zoological Museum; those of *albicornis* and *mirandus* in the Deutsches Entomologisches Museum, Berlin-Dahlem; that of *mirabilis* in the Genoa Civic Museum. There is a co-type of *albicornis* in the Berlin Zoological Museum, and a co-type of *mirandus* in the Brussels Museum.

472 a. *Tachys ovatus* var. *obliteratus*, *Andr.*

Tachys ovatus Motschulsky var. *obliteratus* Andrewes, Revision, 1925, p. 465.

If the example indicated as the type of *albicornis* in the Berlin Zoological Museum really came from Bowering, his label (no. 763) has been removed, though one is attached to the second specimen from the Schaufuss collection. The example in question is clearly not the type, for it does not agree with the description; the elytra are black, reddish only at apex, and instead of the two usual dorsal pores there is a row of about five near stria 3, and two in the neighbourhood of stria 5, the setæ being more or less abraded. This is a smaller number than in *elegans*, and in other respects the example agrees with the typical form of *ovatus*, so that I have treated it as a variety of that species, and in my 'Revision' I gave it the name of var. *obliteratus*. A second rather larger example, also from the Schaum collection, is labelled "Celebes."

473. *Tachys elegans*, *Andr.*

Tachys elegans Andrewes, Revision, 1925, p. 465; Alluaud, *Afra*, ii, 1930, p. 14.

The dimensions and colours are practically those of *ovatus*, to which the species is very nearly related. *Head* with rather deeper inner furrows. *Prothorax* a little narrower, with a wider marginal channel, the setiferous tubercle at the base jutting out much more prominently on each side in the form of a sharp rectangular tooth. *Elytra* similar in shape, the tooth at shoulder on each side more pointed and prominent, the striation similar but with the basal stria very short.

The character which chiefly distinguishes the species from *ovatus* is the presence on each elytron of two rows of long erect setæ, of which there are about five in the first row on the site of stria 3 and nearly twice as many in the second, which is placed apparently on the outer margin of interval 5. The surface and underside do not differ.

Length, 2.6 mm.

Distribution. MADRAS: Nilgiri Hills (*H. L. Andrewes*).

Type in my collection.

An example in the collection of the late T. G. Sloane is referred to in his paper on the Australian species of this genus (*Proc. Linn. Soc. N.S.W.* 1922, p. 196).

fumigatus-group.

474. *Tachys fumigatus*, *Motch.*

Tachys fumigatus Motchulsky *, *Bull. Mosc.* 1851, ii, p. 509; Andrewes, *Revision*, 1925, p. 466, t. 3, f. 17, and t. 4, f. 33; id., *Trans. Ent. Soc. Lond.* 1928, p. 5; id., *Tijdschr. Ent.* lxxii, 1929, p. 307; id., *Résultats Scientifiques du voyage aux Indes Orientales Néerlandaises de LL. AA. RR. le Prince et la Princesse Léopold de Belgique*, *Mém. Mus. Hist. Nat. Belg. (Hors Série)* iv, 4, Carab. 1932, p. 8; id., *Ind. For. Rec.* xviii, pt. v, 1933, p. 3; Alluaud, *Afra*, 7, 1933, pp. 3-5 and 71-20.

Bembidium emarginatum Nietner *, *Ann. Mag. Nat. Hist.* (3) ii, 1858, p. 425.

Bembidium scydmaenoides Nietner *, *Ann. Mag. Nat. Hist.* (3), ii, 1858, p. 427.

Tachys geminatus Schaum *, *Berl. Ent. Zeitschr.* 1860, p. 200; Putzeys, *Ann. Mus. Civ. Gen.* vii, 1875, p. 740.

Tachys socius Schaum *, *Berl. Ent. Zeitschr.* 1863, p. 92; de la Brüllerie, *Ann. Soc. Ent. Fr.* 1875, p. 438, note (82); Reitter, *Wien. Ent. Zeit.* 1884, p. 118; Netolitzky, *Ent. Blätt.* 1914, p. 175; Sloane, *Proc. Linn. Soc. N.S.W.* 1921, p. 203.

Tachys emarginatus Putzeys, *Ann. Mus. Civ. Gen.* vii, 1875, p. 739; Bates, *Ann. Mag. Nat. Hist.* (5) xvii, 1886, p. 155; id., *Ann. Soc. Ent. Fr.* 1889, p. 275; id., *Ann. Mus. Civ. Gen.* xxxii, 1892, p. 295; Bouchard, *Ann. Soc. Ent. Fr.* 1903, p. 170; Dupuis, *Ann. Soc. Ent. Belg.* 1913, p. 426; Andrewes, *Rec. Ind. Mus.* xxii, 1921, p. 341.

Tachys scydmaenoides Bates, *Trans. Ent. Soc. Lond.* 1883, p. 267 (part).

Tachys emarginatus Nietner var. *pallidus* Dupuis * (not Chaudoir, not Reitter), *Ann. Soc. Ent. Belg.* 1913, pp. 175 and 427.

Tachys emarginatus Nietner var. *putzeysi* Dupuis (not Fleutiaux and Sallé), *Ann. Soc. Ent. Belg.* 1913, p. 427.

Tachys fumigatus Motchulsky var. *singalensis* Csiki, *Col. Cat.* pars 97, Carab. 1928, p. 180.

Colour varying from black to light chestnut, elytra each with a small apical and sometimes also a vaguer humeral spot; legs, joints 1 and 2 of antennæ, and palpi flavous, rest of antennæ and penultimate joint of palpi fuscous.

Head with long and very deep furrows, converging and nearly meeting on front margin of clypeus, the surface convex

between them and striate on each side between furrow and eye, both labrum and clypeus deeply emarginate; mentum without pores; eyes rather prominent; antennæ submoniliform. *Prothorax* cordate, a half wider than long, sides rounded in front, contracted and slightly sinuate behind, the base hardly wider than the apex, the hind angles a little obtuse but sharp, without, or with only a very rudimentary, carina; median line fine, basal sulcus not very deep, joining marginal channel at sides, faintly crenulate, barely interrupted, and with only a very slight pore at middle. *Elytra* rather short and convex, the border smooth, extending inwards very little beyond hind angles of prothorax; two rather lightly impressed dorsal striæ, minutely crenulate, 1 entire, 2 extending well beyond dorsal pores, 3 and 4 just traceable, 8 very deep, apical stria short and nearly straight, on middle of elytron, the pore half-way along it; dorsal pores small, at a third and three-fifths, placed on the third interval, though nearer stria 3 than stria 2. Microsculpture distinct, consisting of fine, rather irregular, transverse lines, forming very wide meshes on elytra and neck, front of head quite smooth, prothorax (at least on disk) with the meshes nearly isodiametric. Prosternum sulcate; metasternal process unbordered, depressed, a straight, deep groove running across metasternum behind it; protarsi ♂ not dilated.

Length, 1.8–2 mm.

Distribution. SOUTHERN ASIA from Japan in the north to New Guinea in the south, and from the Philippine Is. in the east as far as East Africa and Madagascar, so that the species has very nearly as wide a range as *fasciatus*.

Type in the Moscow University Zoological Museum; those of *emarginatus*, *scydmaenoides*, and *socius* in the Berlin Zoological Museum; that of *geminatus* in the Deutsches Entomologisches Museum.

As might be expected, when the vast area of distribution is considered, the species is a very variable one, but the different forms are not very clearly defined, and have not here been treated as distinct varieties.

In *scydmaenoides* the elytra are more or less red-brown and the microsculpture of the prothorax is formed by transverse meshes, approaching that of *geminatus*. Examples of this form have been met with in Ceylon and Japan.

In *geminatus* there is a shoulder as well as an apical spot, and this form is prevalent chiefly in the Malay region. The carina in the hind angles of the prothorax is slightly developed, so that the lateral channel and basal sulcus do not quite meet, and there is rather more evidence of a pore at the middle of the sulcus. The microsculpture is also distinctly finer, the meshes being strongly transverse even on the

prothorax ; occasionally it becomes much fainter, or even obsolete. Dupuis's var. *putzeysi* is identical with *geminatus*, and his var. *pallidus* (=var. *singalensis* Csiki) refers to light chestnut examples of the type-form.

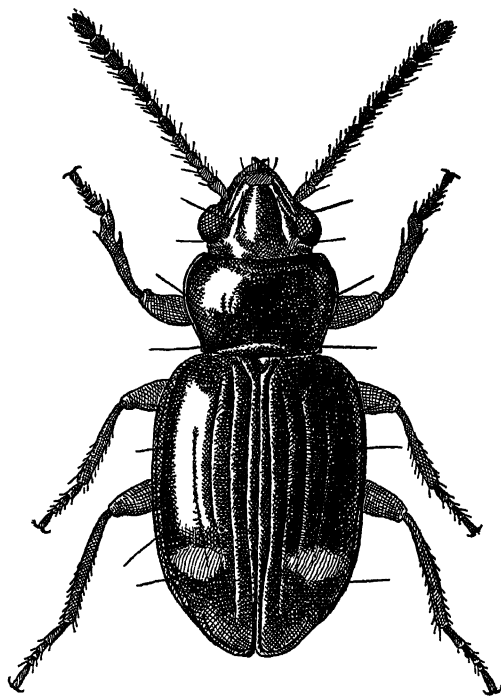


Fig. 48.—*Tachys fumigatus* Motchulsky.

Schaum's *socius* was described from Upper Egypt, and was treated until recent years as a variety of *hæmorrhoidalis* Dej. ; it agrees fairly well with *geminatus*, but stria 3 is present, though lightly impressed, and striæ 4 and 5 are sometimes visible.

acaroides-group.

475. *Tachys acaroides*, Motch.

Tachys acaroides Motchulsky *, Études Ent. viii, 1859, p. 39 ; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 740 ; Andrewes, Revision, 1925, p. 469 ; id., Trans. Ent. Soc. Lond. 1928, p. 19.

Colour ferruginous, with palpi, joint 1 of antennæ, and legs paler.

Head wide, not contracted behind eyes, which are rather flat, frontal furrows single and very short, though fairly deep and wide, mentum without pores, antennæ short and rather slender, submoniliform, joint 2 longer than 3. *Prothorax* convex, quadrate, a half wider than long, base a little narrower than apex, very distinctly produced backwards at middle, with its sides oblique, sides rounded, without trace of sinuation before base, border continued only a little way along base, slightly thickened round the hind angles, which are distinct, though obtuse and without carina; median line just visible,

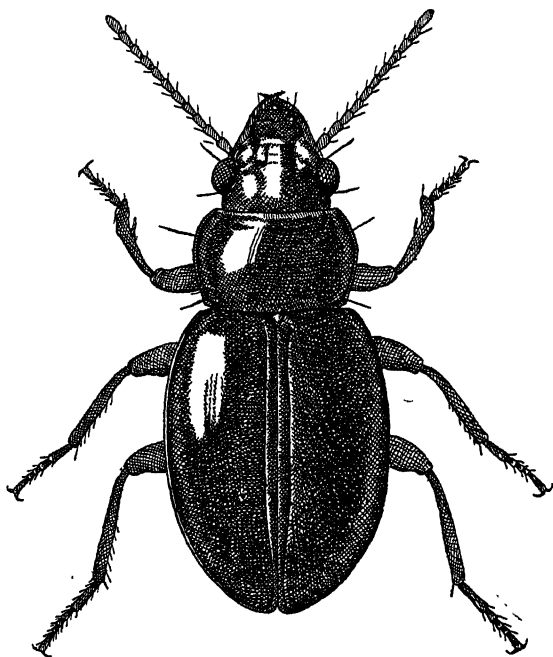


Fig. 49.—*Tachys acaroides* Motschulsky.

basal sulcus shallow, near margin, not crenulate, uninterrupted, obsolete at sides, the base hardly depressed and without foveæ. *Elytra* convex, short-ovate, border setulose and minutely dentate, forming almost an angle at shoulder, but continuing straight inwards on each side to a point a little beyond the hind angle of the prothorax; one rather feebly impressed, smooth, dorsal stria, which does not quite reach either base or apex, stria 8 represented by large punctures, though faintly impressed on apical third, striae wanting; dorsal pores small and rather close together, on the site of

stria 3, at about a third and three-fifths. Prosternum depressed in middle; metasternal process depressed but not clearly bordered, a straight transverse groove behind it; claws smooth.

Length, 1.5 mm.

Distribution. CEYLON: Colombo (*J. Nietner*).

Type in the Moscow University Zoological Museum.

Among the very small members of the genus, and superficially like one of the *haliploides*-group, from which it differs in many of its characters. Bouchard records it from Sumatra (*Ann. Soc. Ent. Fr.* 1903, p. 170), but this proves to have been a misidentification, and I have since described his species (*Ann. Mag. Nat. Hist.* (10) vi, 1930, p. 364) under the name of *T. eurynotus*.

Key to the haliploides-group.

- 1 (4) Elytra with three impressed and crenulate dorsal striae.
- 2 (3) Dorsal striae 2 and 3 moderately impressed; colour pale ferruginous. Length 1.8 mm. *amplians*, Bates, p. 292.
- 3 (2) Dorsal striae 2 and 3 very lightly impressed; colour dark castaneous. Length 2.1 mm. [p. 292. *orphnæus*, sp. nov.,
- 4 (1) Elytra with one dorsal stria only.
- 5 (20) Upper surface shiny, without appreciable microsculpture.
- 6 (13) Upper surface ferruginous or castaneous; elytra sometimes with an ocellate spot on each near apex.
- 7 (8) Antennae pale throughout, elytra sometimes with a vague ocellate spot on each at apex; prothorax two-thirds wider than long, elytra barely a third longer than wide. Length about 2.3 mm. [p. 293. *haliploides*, Bates,
- 8 (7) Antennae with joints 3 to 11 fuscous; prothorax a half wider than long.
- 9 (10) Elytra without spot at apex, only darker along the margin and suture. Length 2.5 mm. *buxans*, Andr., p. 296.
- 10 (9) Elytra with a fairly distinct ocellate spot on each at apex. Length not exceeding 3 mm. [p. 296. *latissimus*, Motch.,
- 11 (12) Elytra about a fourth longer than wide. *latissimus* var. *gracilis*, [Motch., p. 297.
- 12 (11) Elytra quite a third longer than wide..
- 13 (6) Upper surface with at least half its area brown or black; antennae pale. Length under 2 mm.
- 14 (17) Head and prothorax brown or red, elytra mottled or spotted.
- 15 (16) Head and prothorax brown, elytra mottled with brown, apex piceous.. [nes, Andr., p. 295. *haliploides* var. *asthe-*
- 16 (15) Head brown, prothorax red, elytra deep brown, with shoulders and an apical spot on each ferruginous .. [sus, Andr., p. 296. *haliploides* var. *diver-*

- 17 (14) Upper surface mainly black, occasionally dark red on head and prothorax, or at apex of elytra.
- 18 (19) Elytra with apical third dark red, stria 1 ending very abruptly in front. *sarundersi*, Andr., [p. 297.]
- 19 (18) Elytra with suture and margin only sometimes reddish, stria 1 not ending very abruptly in front *[nus*, Andr., p. 295.
haliploides var. *nigri-*
- 20 (5) Upper surface dull, with a conspicuous microsculpture of transverse lines.
- 21 (22) Sutural stria clearly impressed; colour dark ferruginous, with head, disk of prothorax, sutural area, and apex of elytra brown. Length 2.5 mm. *opacus*, Andr., p. 298.
- 22 (21) Sutural stria lightly impressed; colour light ferruginous, with head and prothorax piceous. Length 1.75 mm. *[Andr.*, p. 299.
opacus var. *bicolor*,

476. *Tachys ampliatus*, Bates.

Tachys ampliatus Bates *, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 155; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472; id., Revision, 1925, p. 475.

Colour castaneous, apex of elytra a shade lighter, joints 1 and 2 of antennæ and legs paler.

Head wide, with moderately impressed furrows, diverging a little behind; mentum without pores; eyes not prominent; antennæ submoniliform, joints 2 and 3 equal. *Prothorax* convex, two-thirds wider than long, sides very little contracted and only slightly sinuate behind, so that base is much wider than apex, hind angles slightly obtuse but not rounded, without carina; basal sulcus moderately deep, vaguely crenulate, interrupted, and with a pore on each side of middle. *Elytra* very convex, short-ovate, rather pointed at apex, border smooth, just reaching hind angles of prothorax; three finely crenulate and moderately impressed dorsal striæ, 1 entire, 2 and 3 nearly reaching base but considerably shortened behind, 4 very faint, 5 just traceable, 8 deep on apical half, striae short and curved, on middle of elytron, the pore half-way along it; dorsal pore small, on stria 3, at about a half. No microsculpture.

Length, 1.8 mm.

Distribution. CEYLON: Kandy (in text), Colombo (on label) (G. Lewis).

Type in the British Museum. This is the only specimen seen.

477. *Tachys orphnæus*, sp. nov.

Colour dark castaneous; joints 1 and 2 of antennæ and legs ferruginous.

Head with shallow furrows, diverging behind; mentum without pores; eyes moderately prominent; antennæ

rather slender, reaching basal fourth of elytra, joints 2 and 3 equal. *Prothorax* convex, fully two-thirds wider than long, sides gently rounded in front, only slightly contracted and straight behind, the base much wider than the apex, hind angles slightly obtuse but not rounded, without carina; median line very fine, basal sulcus with some slight crenulation, moderately deep, interrupted, and with two pores at middle. *Elytra* very convex, short-ovate, somewhat pointed at apex, a third wider than prothorax, about a fifth longer than wide, border smooth, hardly extending inwards beyond hind angles of prothorax; striae vaguely crenulate, 1 entire and moderately deep, 2 and 3 extremely lightly though quite visibly impressed, 4 and 5 just visible, 8 deep on apical half, represented by large pores in front, striole short, curved, on middle of elytron, the pore half-way along it; dorsal pore small, on stria 3 at about a half.

Length, 2.1 mm.

Distribution. UNITED PROVINCES: Chakrata Range, Haldwani (*S. N. Chatterjee*).

Type in the British Museum.

478. *Tachys haliploides*, Bates.

Tachys haliploides Bates *, *Ann. Mus. Civ. Gen.* xxxii, 1892, p. 289; Andrewes, *Ann. Mag. Nat. Hist.* (9) iii, 1919, p. 472; *id.*, *Revision*, 1925, p. 478, t. 3, ff. 11 and 18; *id.*, *Trans. Ent. Soc. Lond.* 1928, p. 4.

Colour pale ferruginous, apex of elytra sometimes darker and with a vague lighter ocellate apical spot on each elytron (Bates says that joints 3 to 11 of the antennae are occasionally fuscous, but in six typical specimens before me, including the type, and in numerous other examples in my collection, the antennae are uniformly pale).

Head with short, single furrows, diverging a little behind; mentum without pores; eyes rather flat; antennae a little dilated at apex, joints 2 and 3 equal. *Prothorax* convex, two-thirds wider than long, hardly contracted behind, so that base is much wider than apex, sides rounded in front and somewhat explanate behind, the angles right and fairly sharp, with a rudimentary carina; median line very fine, basal sulcus moderately deep, subcrenulate, interrupted, and with two pores at middle, the foveae punctiform. *Elytra* very convex, ovate, barely a third longer than wide, border smooth, hardly extending inwards beyond hind angles of prothorax; stria 1 finely crenulate, practically entire, though very shallow near base, the other striae obsolete (though as the surface is translucent their course may often be traced by the large underlying punctures), 8 deep on apical half, obsolete in front,

striae short and rather deep, curving slightly inwards in front, the pore on inner (Bates says outer) margin, rather behind middle; a single minute dorsal pore at about middle on the site of stria 3. No microsculpture. Prosternum not sulcate; metasternum with a transverse groove in front; protarsi ♂ without apparent dilatation; claws minutely denticulate.

Length, 2.1-2.4 mm.

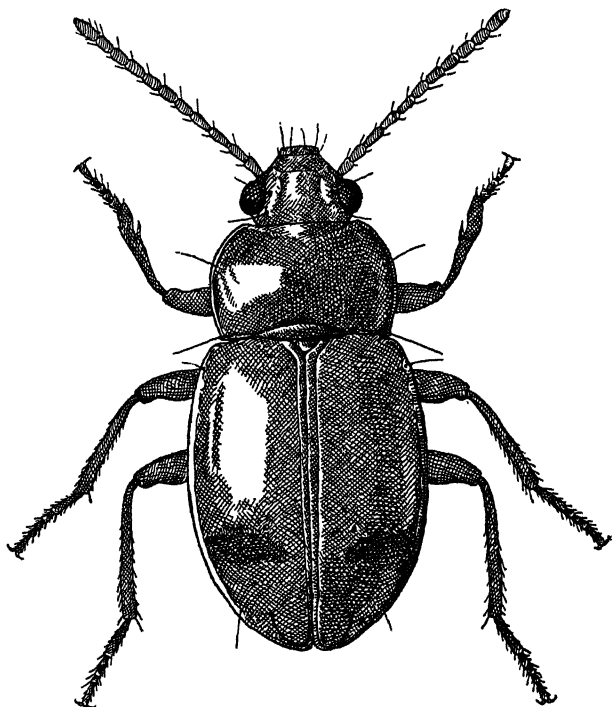


Fig. 50.—*Tachys haliploides* Bates.

Distribution. UNITED PROVINCES: Dehra Dun (*M. Cameron*); Haldwani (*H. G. Champion*). CENTRAL PROVINCES: Nagpur (*E. A. d'Abreu*). BOMBAY: Belgaum (*H. E. Andrewes*). MADRAS: Nilgiri Hills (*H. L. Andrewes*); Vizagapatam, Chirupupalli (*R. S. Patuck*). BIHAR: Barwa (*Cardon*). BURMA: Bhamo, Karen Hills, and Thagata (Tenasserim) (all *L. Fea*). NICOBAR IS. TONG-KING. PHILIPPINE IS. JAVA. CELEBES. NEW GUINEA.

Type in the Genoa Civic Museum.

Mr. H. L. Andrewes notes that specimens were abundant amongst debris on moist ground and that he took some also "in toadstool."

This species, which is taken as typical of the Eastern forms of the group, is larger than the two palæarctic species, *globulus* Dej. and *caraboides* Motsch.; it is coloured much like the latter, but is a little wider, with only one finely crenulate dorsal stria.

478 a. *Tachys haliploides* var. *nigrinus*, Andr.

Tachys haliploides Bates var. *nigrinus* Andrewes, Revision, 1925, p. 479; id., Trans. Ent. Soc. Lond. 1930, p. 3.

Specimens from the Himalayas differ from the typical ferruginous form in being black on the upper surface, the head, prothorax, sutural interval, and margin of the elytra sometimes very dark red; underside piceous red, tibiæ and tarsi ferruginous, femora a little darker, antennæ also ferruginous, with the middle joints slightly infuscate. Apart from colour they do not seem to differ from the typical form, though the prothorax appears a little wider relatively to the elytra, the basal sulcus not quite so deep near the hind angles, and the surface along base, especially at sides, with a slightly explanate appearance.

The examples from Sikkim are about 2 mm. long, those from the United Provinces about 1.75 mm.

Distribution. UNITED PROVINCES: West Almora, Upper Gumti Valley, Haldwani (Nandhaur River), and Chilla (Ganges River) (all *H. G. Champion*). BENGAL: Gopaldhara (*H. Stevens*); Darjeeling (*R. W. G. Hingston*). ASSAM: Assam Valley (*Doherty*).

Type in my collection.

478 b. *Tachys haliploides* var. *asthenes*, Andr.

Tachys haliploides Bates var. *asthenes* Andrewes, Revision, 1925, p. 480.

Elytra ferruginous, slightly mottled with brown in front, the apex piceous, the head and prothorax dark brown. Similar to var. *nigrinus*, but with the sides of both prothorax and elytra rather more rounded, the hind angles of the former distinctly obtuse, the base without the explanate appearance of *nigrinus*.

Length, 1.75 mm.

Distribution. PUNJAB: Simla Hills, Gahan, 7000 feet (*S. N. Chatterjee*). UNITED PROVINCES: West Almora and Haldwani (*H. G. Champion*); Siwalik Hills, Mohan Rau (*M. Cameron*); Dehra Dun.

Type in the British Museum.

478 c. *Tachys haliploides* var. *diversus*, *Andr.*

Tachys haliploides Bates var. *diversus* Andrewes, Revision, 1925, p. 480.

Head brown, prothorax ferruginous, elytra deep brown, each with a large shoulder-spot reaching suture, and a small rounded apical spot flavous, antennæ and legs very pale. The prothorax is nearly as wide as in the type-form but rather more contracted behind, the elytra distinctly narrower, so that the insect has a more elongate appearance.

Length, 1.9 mm.

Distribution. EASTERN DUARS (*H. Stevens*).

Type in my collection.

479. *Tachys buxans*, *Andr.*

Tachys buxans Andrewes, Revision, 1925, p. 476.

Colour rather dark testaceous, elytra a little darker towards apex, especially along margins and suture; joints 1 and 2 of antennæ (rest fuscous), and legs flavous.

Head with moderately deep furrows, diverging a little behind; mentum without pores; eyes rather flat; antennæ reaching basal third of elytra. *Prothorax* convex, a half wider than long, base much wider than apex, sides rounded in front, gently contracted behind, without trace of sinuation, the angles a little obtuse and not very sharp, with a rudimentary carina; basal sulcus moderately deep, finely crenulate, interrupted, and with two pores at middle, the foveæ punctiform just inside the carina. *Elytra* ovate, convex, two-fifths longer than wide, border smooth, just reaching hind angles of prothorax; sutural stria smooth, entire, though hardly impressed close to base, 8 deep on apical half, striae fairly long, on middle of elytron, curving strongly inwards in front, the pore rather behind middle; dorsal pore small, on stria 3, at about middle. No microsculpture. Claws very clearly denticulate.

Length, 2.5 mm.

Distribution. MADRAS: Palni Hills, on the shores of Kodai-kanal Lake (*S. W. Kemp*).

Type in the Indian Museum, Calcutta.

480. *Tachys latissimus*, *Motch.*

Tachys latissimus Motchulsky *, Bull. Mosc. 1851, ii, p. 508; Andrewes, Revision, 1925, p. 478; id., Trans. Ent. Soc. Lond. 1928, p. 4.

Elaphropus latissimus Motchulsky, Études Ent. viii, 1859, p. 40, t. f. 4; id., Études Ent. xi, 1862, p. 37; Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Very closely allied to *haliploides*, but on average a little smaller, the elytra of the same shape but the prothorax

relatively smaller, the antennæ fuscous except the basal joints, the apical spot generally conspicuous. Typical specimens are intermediate between *haliploides* and *gracilis*; there are numerous examples of both of Motchulsky's species in the Prague Museum, whence no doubt his material came, and it seems quite possible that all the specimens belong to one very variable species. The differences, however, seem at present too great to justify their union; *haliploides*, with its pale antennæ and nearly uniformly pale elytra, seems the most distinct of the three, and has accordingly been treated as standing by itself, but *gracilis* may reasonably be regarded as not more than a variety of *latissimus*.

Distribution. BURMA: Tenasserim (*J. W. Helfer*).

Type in the Moscow University Zoological Museum.

481. *Tachys latissimus* var. *gracilis*, *Motch.*

Elaphropus gracilis Motchulsky *, Études Ent. xi, 1862, p. 36; id., Études Ent. viii, 1859, p. 40 (nomen nudum); Andrewes, Ann. Mag. Nat. Hist. (9) iii, 1919, p. 472.

Tachys subfasciatus Putzeys * (not Motchulsky), Ann. Mus. Civ. Gen. vii, 1875, p. 739.

Tachys unistriatus Putzeys *, Ann. Mus. Civ. Gen. vii, 1875, p. 740.

Tachys haliploides Bates var. *contractulus* Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 290.

Tachys gracilis Andrewes, Revision, 1925, p. 477.

Tachys latissimus Motchulsky var. *gracilis* Andrewes, Trans. Ent. Soc. Lond. 1928, pp. 4 and 20.

The colour of the antennæ and elytra are similar to those of the type-form, and the only difference of any importance is in the form of the elytra, which are relatively longer and narrower.

Distribution. BOMBAY: Belgaum, Parle (*H. E. Andrewes*). UNITED PROVINCES: Haldwani (*H. G. Champion*). BIHAR: Purneah, Kierpur (*C. Paiva*). BENGAL: Calcutta (*F. H. Gravely*); Sardah (*F. W. Champion*); Diamond Harbour (*T. D. A. Cockerell*). EASTERN DUARS (*H. Stevens*). ASSAM: Garo Hills, Someswari River (*S. W. Kemp* and *B. Chopra*). BURMA: Tenasserim (*J. W. Helfer*) and "Burma" (*L. Fea*). NICOBAR IS. SIAM. CAMBODIA. JAVA. CELEBES. NEW GUINEA.

Type in the Moscow University Zoological Museum; those of *subfasciatus* and *unistriatus* in the Brussels Museum; that of *contractulus* in the Genoa Civic Museum.

482. *Tachys saundersi*, *Andr.*

Tachys saundersi Andrewes, Revision, 1925, p. 482; id., Tijdschr. Ent. lxxii, 1929, p. 307.

Colour piceous black above, dark testaceous beneath, apical third of elytra vaguely red, the colour sometimes extending

a little way forward along sides; antennæ and legs ferruginous.

Head wide, with rather shallow furrows, diverging a little behind; mentum without pores; eyes not prominent; antennæ submoniliform, dilated at apex. *Prothorax* convex, quite two-thirds wider than long, base much wider than apex, sides rather strongly rounded in front, barely contracted and not sinuate behind, the angles right, not very sharp, and projecting slightly backwards, with a rudimentary carina; basal sulcus deep at sides, smooth, widely interrupted, and with two pores at middle. *Elytra* convex, with strongly rounded sides, a third longer than wide, border smooth, just reaching hind angles of prothorax; sutural stria hardly crenulate, fairly deep, reaching apex but terminating very abruptly at a little distance from base, 8 deep behind, striae rather short and nearly straight, on middle of elytron, the pore half-way along it; dorsal pore small, on site of stria 3, at about middle. No microsculpture. Metasternal process with a deep arcuate groove behind it. Claws denticulate.

Length, 1.75–2 mm.

Distribution. SIKKIM (*Harmand*). MALAY STATES. JAVA. SUMATRA.

Type in my collection.

The species bears a strong resemblance to *haliploides* var. *nigrinus*, but has the apical third of the elytra dark red, the eyes a little less flat, the prothorax wider and hardly contracted behind, the elytra wider and with more rounded sides, the sutural stria deeper and terminating very abruptly in front.

The typical form is found in the Malay States and Sumatra. Examples from Java are rather more globular in form and the apex of the elytra is not red, but stria 1 is equally deep and ends as abruptly in front.

The specimens from Sikkim (Paris Museum) are similar in colour to the type-form, but with only the apical border red. The characters generally, including the form of stria 1, are similar, but both prothorax and elytra are a little narrower, the former more contracted behind.

483. *Tachys opacus*, *Andr.*

Tachys opacus Andrewes, Revision, 1925, p. 483.

Colour of the upper surface dark ferruginous, dull; head, disk of prothorax, suture, disk, and apex of elytra, and underside more or less suffused with brownish red; base of venter piceous; joints 1 to 4 of antennæ and legs flavous; rest of antennæ and penultimate joint of palpi fuscous.

Head with moderately deep furrows, diverging behind and bounded outwardly on each side by a ridge, clypeus with

a lateral border; mentum without pores; eyes not prominent; antennæ slightly dilated at apex. *Prothorax* convex, quite two-thirds wider than long, base much wider than apex, sides rounded, gently contracted behind, without trace of sinuation, the angles slightly obtuse, without carina; basal sulcus not very deep, very indistinctly crenulate, rather narrowly interrupted, and with only a vague pore on each side of middle. *Elytra* ovate, convex, about a third longer than wide, border smooth, just reaching hind angles of prothorax; stria 1 rather shallow and faintly crenulate, not quite reaching base, 2 just visible, 8 deep behind, striole on middle of elytron, rather strongly curved, the pore well behind middle; dorsal pore distinct, on site of stria 3, just before middle. Microsculpture very clear, the elytra with closely placed transverse lines; on the prothorax these lines vary in direction, but on the disk they are longitudinal; on the front and vertex there is a transverse reticulation. Metasternum with a transverse groove in front. Claws denticulate.

Length, 2.5 mm.

Distribution. BENGAL: Sardah (F. W. Champion); "Bengal" (J. Nietner).

Type in the British Museum.

483 a. *Tachys opacus* var. *bicolor*, Andr.

Tachys opacus Andrewes var. *bicolor* Andrewes, Revision, 1925, p. 484.

In the same locality Mr. Champion also took four examples which differ from the typical form in their much smaller size, viz., 1.75 mm. against 2.5 mm. The elytra are uniformly light ferruginous, the head and prothorax piceous, with the side-margins of the latter lighter. The shape is slightly narrower and the sutural stria is less impressed. The microsculpture is identical, producing the same dull appearance.

Type in the British Museum.

In the Copenhagen Museum there are examples from Bengal ("Galatea" Expedition) which agree with var. *bicolor* in form, but are about 2 mm. in length. Two of them agree in colour, but in the others the suture, disk, and apex of the elytra are tinged with brown as in the type-form.

Key to the umbrosus-group.

- | | |
|---|---------------------------------------|
| 1 (2) Elytra with five dorsal striæ, the hind dorsal pore placed on or near stria 4, a microsculpture present. Length 3 mm. | [p. 300.
<i>umbrosus</i> , Motch., |
| 2 (1) Elytra with only one dorsal stria, very lightly impressed on basal half, hind dorsal pore on or near the site of stria 5, no microsculpture present. Length 2.25 mm. | [p. 301.
<i>coracinus</i> , Putz., |

484. *Tachys umbrosus*, *Motch.*

Tachys umbrosus Motschulsky *, Bull. Mosc. 1851, ii, p. 507 ; Putzeys, Ann. Mus. Civ. Gen. vii, 1875, p. 745 ; Andrewes, Revision, 1925, p. 488, t. 3, f. 12 and t. 4, ff. 21 and 25 ; id., Trans. Ent. Soc. Lond. 1928, p. 3 ; id., Fauna of British India, Carabidæ, i, 1929, p. 16, f. 4 b ; id., Tijdschr. Ent. lxxii, 1929, p. 307 ; id., Treubia, vii, Suppl. 1930, p. 331.

Tachys parallelus Motschulsky *, Bull. Mosc. 1851, ii, p. 507 (not Káf. Russ. 1850, 8 (note 3)) ; Andrewes, Trans. Ent. Soc. Lond. 1928, p. 4.

Acupalpus extremus Walker *, Ann. Mag. Nat. Hist. (3) ii, 1858, p. 204 ; Andrewes, Trans. Ent. Soc. Lond. 1919, p. 190.

Tachymenis umbrosa Motschulsky, Études Ent. xi, 1862, p. 32.

Tachyta nietneri Schaum *, Berl. Ent. Zeitschr. 1863, p. 88.

Tachyta umbrosa Bates, Ann. Mag. Nat. Hist. (5) xvii, 1886, p. 151 ; id., Ann. Mus. Civ. Gen. xxxii, 1892, p. 296.

Colour piceous ; palpi, antennæ, and tarsi more or less dark ferruginous, apex of femora and tibiæ brown.

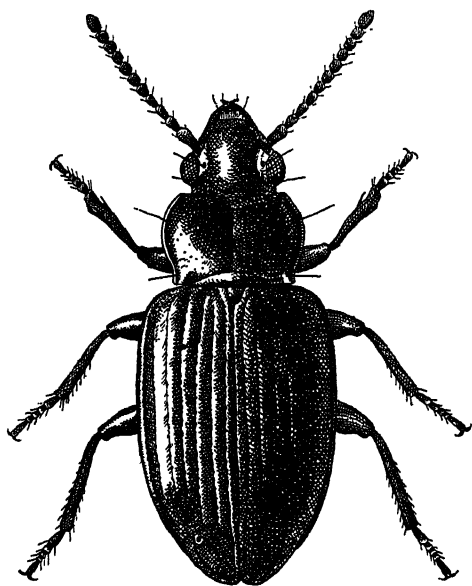


Fig. 51.—*Tachys umbrosus* Motschulsky.

Head with the furrows short, shallow, and a little divergent behind ; mentum without pores ; eyes moderately prominent ; antennæ short and thick, moniliform, joint 2 shorter than 3. *Prothorax* rather flat, a little more than a half wider than long, sides with the border minutely setulose, rounded in

front, contracted and faintly sinuate behind, the base very little wider than the apex, hind angles right and sharp, with a carina nearly parallel with the sides; median line deep but not reaching extremities, basal sulcus fairly deep, not crenulate, interrupted at middle, the median line just reaching the interruption. *Elytra* flat, elongate-ovate, border setulose, rounded at shoulder, and extending inwards very little beyond hind angles of prothorax; five lightly impressed, finely punctate, dorsal striæ, decreasing in depth outwards, 1 entire, the others nearly reaching base but shortened behind, 6 very faint, 7 obsolete, 8 deep but almost interrupted in front, where a few punctures only are present, striole long, nearly parallel with and adjacent to margin, the pore well behind middle; dorsal pores on stria 4 at about a fifth and near the end of the striole respectively. Microsculpture conspicuous, more or less isodiametric on head and prothorax, the meshes on the elytra moderately transverse; the surface generally is punctulate. Underside setulose; prosternum slightly sulcate; metasternal process rather finely bordered; protarsi ♂ with two dilated joints. Claws denticulate.

Length, 3 mm.

Distribution. SOUTH-EAST ASIA. Widely distributed and found as far south as New Guinea, but not reaching Japan in the north. It occurs in Ceylon, but in India it seems to be confined to the Himalayan tract.

Type in the Moscow University Zoological Museum; that of *parallelus* presumably also in Moscow, but there is a co-type in the Deutsches Entomologisches Museum at Berlin-Dahlem; that of *extremus* in the British Museum; that of *nietneri* in the Deutsches Entomologisches Museum.

Examples of this species have been found under the bark of various trees, including *Pinus longifolia* Roxb., *P. khasya* Royle, *P. excelsa* Wall., *Planchonia andamanica* King, *Grewia tiliaefolia* Vahl, and *Shorea robusta* Gaertn. It is very closely allied to the palæarctic *T. nanus* Gyllh., also found under bark.

485. *Tachys coracinus*, Putz.

Tachys coracinus Putzeys *, Ann. Mus. Civ. Gen. vii, 1875, p. 739; Andrewes, Revision, 1925, p. 491; id., Tijdschr. Ent. lxxii, 1929, p. 307.

Tachys remotiporis Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 290.

Colour black, shiny, upper surface sometimes faintly blue, or æneous; palpi, antennæ, tibiæ, and tarsi ferruginous.

Head with the furrows moderately deep and long, diverging behind, and bounded outwardly on each side by a ridge; mentum without pores; eyes rather prominent; antennæ

moniliform. *Prothorax* moderately convex, two-thirds wider than long, sides well rounded in front, contracted and slightly sinuate behind, so that the base is not much wider than the apex, the border microscopically setulose, hind angles right, a little reflexed, and without carina; basal sulcus fairly deep, not crenulate, interrupted at middle, the median line, which is moderately deep behind, just reaching the interruption. *Elytra* ovate, moderately convex, not quite a half longer than wide, border almost imperceptibly dentate and setulose, rounded at shoulder, just reaching hind angles of prothorax, marginal channel wide; stria 1 distinctly impressed on apical half but not nearly reaching base, 2 sometimes just traceable, 8 deep at extremities, shallow but not interrupted in front, some very long hairs issuing from the pores along its course, striole long, nearly parallel with and not far from margin, slightly hooked inwards in front, the pore far back near apex; dorsal pores large and distinct, on or near the site of stria 5, front one at a fifth from base, hind one at a fourth from apex, near the front end of the striole, surface very smooth and shiny. Microsculpture inappreciable. Body beneath finely punctate and setulose, prosternum not sulcate, metasternal process narrowly bordered, claws finely denticulate.

Length, 2.25 mm.

Distribution. ASSAM: Patkai Mountains and Sadiya. BURMA: Kawkareik, Meetan, and Palon (*L. Fea*); Mohnyin River (*C. F. C. Beeson*); Tenasserim (*J. W. Helfer*). MALAY STATES. SIAM. TONG-KING. JAVA. SUMATRA. MENTAWAI IS. BORNEO. CELEBES. PHILIPPINE IS.

Type, as also that of *remotiportis*, in the Genoa Civic Museum.

Mr. C. J. Saunders took specimens under bark at Singapore, and Dr. Beeson's example bears a note, "ex pupal chamber in *Vitex*."

According to a note (no. 10021, 11. ii. 1935) sent by Mr. G. H. Corbett, of the Entomological Division of the Agricultural Department, Malay States, to the Imperial Institute of Entomology, larvæ of this species were found on the egg, young grub, and pupæ of *Odoiporus* and *Cosmopolites*, and are presumed to be predatory on them.

Genus **LYMNASTIS**.

Lymanastis Motschulsky, Études Ent. xi, 1862, p. 27; Reitter, Wien. Ent. Zeit. 1884, p. 124.

Lymanastus Piochard de la Brûlière, Ann. Soc. Ent. Fr. 1875, p. 436; Bedel, Catalogue raisonné des Coléoptères du Nord de l'Afrique, 1896, p. 79.

Lymanastis Ganglbauer, Käf. Mitteleur. i, 1892, p. 181; Andrewes, Revision of the oriental species of the genus *Tachys*, Ann. Mus.

Civ. Gen. li, 1925, p. 493 ; Jeannel, Révision du genre *Limnastis*, Soc. Ent. Fr. Livre du Centenaire, 1932, p. 167.

Limnastes Bedel, Catalogue raisonné des Coléoptères du Nord de l'Afrique, 1896, p. 54.

Zuphiolum Fairmaire, Bull. Soc. Ent. Fr. 1896, p. 344.

TYPE, *Lymnæum indicum* Motch. (India and Burma.)

Colour mainly ferruginous. Body flat, elongate, punctulate, and with a short erect pubescence.

Head small, eyes rather flat, adjoining buccal fissure, minutely setulose, two supraorbital setæ present (Indian species); frontal impressions generally wide and shallow; antennæ short but fairly stout and more or less moniliform, pubescent throughout; labrum truncate or arcuate, sex-setose; clypeus transverse, bisetose; mandibles short but fairly stout; mentum emarginate, but without tooth in the emargination (except *pilosus*), and without the forameniform pores sometimes seen in *Tachys*; ligula bisetose, fused with the wide membranous paraglossæ; maxillæ as in *Tachys*; maxillary palpi well developed, penultimate joint strongly dilated and setulose, last joint narrow, subulate; labial palpi much less developed, penultimate joint moderately dilated and bearing only a few setæ, last joint very slender, longer than in the maxillary palpi.

Prothorax subcordate, base produced strongly backwards at middle, side border minutely setulose, a seta at apical third and another just before hind angle, median line and transverse impressions rather slight.

Elytra flat, more or less truncate at apex, the border setulose (the setæ longer than is usual in *Tachys*) and denticulate behind shoulder, but not extending inwards beyond it, more or less striate, but stria 8, the scutellary striole, and the apical striole all wanting, two dorsal pores on or close to stria 3 (except in *pullulus*), one at apical third the other not far from apex.

Prosternum not sulcate, metasternal process very finely bordered between the mesocoxæ, last ventral segment ♂ with two, ♀ with four setæ nearly in line; protibiæ with the outer margin truncate at apex, but more emarginate than in *Tachys*, protarsi ♂ with the first two joints moderately dilated and produced inwards at apex, claws smooth.

A microsculpture is present in all the Indian species except *indicus*.

Range. Southern Asia and Southern Europe, Africa, Australia.

Very little is known of the habits and nothing of the life-history of these minute insects, but *L. indicus* has been taken flying to light.

Key to the Species.

- 1 (2) Colour dark ferruginous; surface very coarsely punctate; elytral striæ punctate; no microsculpture present. Length 2.2 mm. *indicus*, Motch., p. 304.
- 2 (1) Colour light ferruginous; surface moderately or finely punctate; elytral striæ impunctate or vaguely crenulate; microsculpture present.
- 3 (6) Elytral striæ impressed, at least near apex; meshes of the microsculpture on the elytra transverse. Length 2 mm. or over.
- 4 (5) Upper surface uniformly ferruginous; prothorax equally contracted at its extremities; elytral striæ 4 and 5 indistinctly impressed; puncturation moderate *pilosus*, Bates, p. 305.
- 5 (4) Prothorax and elytra ferruginous, head piceous black; prothorax with its base wider than its apex; elytral striæ 4 and 5 distinctly impressed; puncturation fine [p. 306.
atricapillus, Bates,
- 6 (3) Elytral striæ very faint, 1 and 2 lightly impressed near apex only; meshes of the microsculpture on the elytra isodiametric. Length 1.7 mm. *pullulus*, Motch., p. 306.

486. *Lymanastis indicus*, Motch.

Lymanæum indicum Motchulsky, Bull. Mosc. 1851, ii, p. 507.

Lymanastis indicus Motchulsky *, Études Ent. xi. 1862, p. 27;

Andrewes, Trans. Ent. Soc. Lond. 1928, p. 3.

Lymanastis indicus Andrewes, Revision, 1925, p. 494; Jeannel, Révision, 1932, pp. 174 and 176, ff. 18-20.

Colour rather dark ferruginous.

Head convex, with two small rounded impressions, not extending on to clypeus and hardly reaching backwards beyond the front margin of the eyes; antennæ moniliform; surface with few but large punctures. *Prothorax* slightly convex, about equally contracted at extremities, widest well before middle, sides strongly rounded in front, then straight to the hind angles, which are a little obtuse, the pores on each side forming a slight indentation in front of them; median line relatively deep, front transverse impression with some large punctures marking its course, basal sulcus not very deep, somewhat removed from base in the middle, obsolete at sides, surface with few but large punctures. *Elytra* elongate, with square shoulders, striæ lightly impressed, punctate, hardly reaching base, 1 and 2 deeper behind, reaching apex, where 2 curves strongly outwards so that interval 2 is very wide, 2 to 4 fairly distinct, 5 rather faint, 6 and 7 indicated by punctures only; intervals with a single row of

punctures along the middle, much larger than those in the striae, the puncturation not quite regular and less so at sides, the dorsal pore at apical third indistinct. No appreciable microsculpture.

Length, 2.2 mm.

Distribution. BENGAL : Calcutta (*F. H. Gravely*). BURMA : "Tenasserim" (*J. W. Helfer*) ; Victoria Point (*E. T. Atkinson*).

Type in the Moscow University Museum. It is probable that this and all the other known specimens, with the exception of the Calcutta and Victoria Point examples, came from Helfer's collection, now in the Prague Museum.

487. *Lymnastis pilosus*, Bates.

Lymnastis pilosus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 296.

Tachys setiger Sloane, Proc. Linn. Soc. N.S.W. 1903, p. 582 ;

id., Proc. Linn. Soc. N.S.W. 1920, p. 321.

Lymnastis pilosus Sloane, Proc. Linn. Soc. N.S.W. 1921, p. 208 ;

Andrewes, Revision, 1925, pp. 494 and 495 ; Jeannel, Révision, 1932, pp. 175 and 179, ff. 24 and 27-30.

Colour light ferruginous.

Head with fairly large, wide, frontal impressions, extending on to the clypeus ; eyes rather flat ; antennae submoniliform ; surface with few but fairly large punctures. *Prothorax* subquadrate, a fourth wider than long, base with its sides somewhat oblique, wider than apex, sides faintly sinuate before base, the angles sharp and hardly more than right ; front transverse impression obsolete, median line and basal sulcus shallow, surface sparsely punctate. *Elytra* flat, twice as long as wide, the truncature at apex with a rather wide re-entrant angle at suture ; striae lightly impressed and impunctate, or vaguely crenulate, 6 and even 7 being distinguishable, 1 to 3 clearly impressed and turning outwards near apex, 3 a little more so than 2, so that interval 3 is widest at that point and has on it the apical discal pore, very near to stria 3, which curves inwards again at extreme apex and joins 1 ; intervals with the punctures fine and numerous, interval 4, at least in front (as also the outer intervals), with two irregular rows, one on each side, adjoining striae 3 and 4 respectively. (Bates mentions only one dorsal pore, though there are actually two.) Microsculpture very clear, reticulate, fine on the elytra, where the meshes are small and moderately transverse, coarser on the head and prothorax, where they are isodiametric or only slightly transverse.

Length, 2.2 mm.

Distribution. UNITED PROVINCES : Haldwani (*H. G. Champion*). BIHAR : Barwa (*Cardon*). BENGAL : Calcutta (*S. W. Kemp* and *F. H. Gravely*) ; Sardah (*F. W. Champion*) ; Eastern Bengal State Railway, between Sorbhog and Golakganj

(*S. W. Kemp*). BURMA : Bhamo, Katha, and Palon (*L. Fea*) ; Shwegu (*H. G. Champion*) ; Tenasserim (*Helper*). MALAY STATES (Singapore and Kuala Lumpur). TONG-KING. PHILIPPINE IS. FORMOSA. SUMATRA. JAVA. BORNEO. CELEBES. NEW GUINEA. AUSTRALIA.

Type in the Genoa Civic Museum.

488. *Lymnastis atricapillus*, *Bates*.

Lymnastis atricapillus Bates *, Ann. Mus. Civ. Gen. xxxii, 1892, p. 297.

Lymnastis atricapillus Andrewes, Revision, 1925, pp. 494 and 496 ; Jeannel, Révision, 1932, pp. 174 and 177.

Colour light ferruginous, the head piceous black (clypeus and labrum pale), front and hind margins of prothorax tinged with brown.

Head with wide and not very deep frontal impressions ; eyes moderately prominent ; antennæ submoniliform ; surface with some indistinct puncturation. *Prothorax* subquadrate, very little contracted behind, base evidently wider than apex, sides very faintly sinuate before base, the angles about right ; median line moderately deep, both front transverse impression and basal sulcus rather shallow, surface sparsely punctate. *Elytra* shorter than in *pilosus*, similarly truncate and with a slight re-entrant angle ; striæ distinct and vaguely crenulate, 1 to 3 deeper at apex, 4 and 5 quite distinct on disk, 6 and 7 obsolete, interval 3 a little wider than the others at apex, apical dorsal pore placed on it near apex as in *pilosus*, each interval with a similar row of rather finer punctures, a little less closely placed. Microsculpture as distinct as in *pilosus*, the meshes on the elytra moderately transverse, on the prothorax also transverse but a little larger, isodiametric on the head, but smaller and more conspicuous.

Length, 2.1 mm.

Distribution. BURMA : Katha (*L. Fea*). BORNEO.

Type in the Genoa Civic Museum.

489. *Lymnastis pullulus*, *Motch*. [Plate I, fig. 1.]

Lymnastis pullulus Motchulsky *, Études Ent. xi, 1862, p. 31 ; Andrewes, Trans. Ent. Soc. Lond. 1928, p. 19.

Lymnastis levatus Andrewes, Revision, 1925, pp. 494 and 497 ; Jeannel, Révision, 1932, pp. 175 and 178.

Lymnastis pullulus Andrewes, Revision, 1925, p. 498 ; Jeannel, Révision, 1932, p. 176.

Colour ferruginous ; head, apex of elytra, and a triangular patch at their base brownish.

Head with short, shallow, wide impressions ; eyes very flat ; antennæ moniliform ; vertex clearly punctate. *Pro-*

thorax a little more than a third wider than long, equally contracted at extremities, base with its sides very oblique, sides rounded in front and sinuate a little behind middle, the angles slightly obtuse and reflexed; front transverse impression very faint, median line impressed at middle only, basal sulcus uneven, fairly deep, surface with some coarse scattered punctures, finer on the disk. *Elytra* flat, a half longer than wide, with square shoulders; striæ very faint, but 1 and sometimes 2 towards apex are generally lightly impressed, 3 to 5 just traceable; intervals each with a row of minute setiferous pores, more widely spaced towards apex, 2 and 3 widening near apex, with the single dorsal pore on 3, not far from apex. Microsculpture isodiametric throughout, but not very distinct, so that the surface is fairly shiny.

Length, 1.7 mm.

Distribution. BENGAL: Calcutta (*F. H. Gravely*).

Type in the Moscow University Museum; that of *levatus* in the Indian Museum, Calcutta.

The Calcutta specimens were taken mostly "at light," but one of them came "from base of leaf of tall palm-tree."

Easily distinguished from other Eastern species by its small size, obsolete striæ, uniformly isodiametric microsculpture, and single dorsal pore.

Group XVIII. POGONINI.

Though rich neither in genera nor species this group has representatives in most regions of the globe, and four of the genera are met with in the Indian region. The head has two supraorbital setæ on each side, the mandibles have a seta in the scrobe, the ligula is fairly wide, with two setæ at apex, usually placed so close together that they appear as one, the paraglossæ free at apex and extending but little beyond the ligula, the palpi as a rule with the last two joints about equal in length, the last joint either pointed or truncate at apex, the penultimate joint of the labial palpi bisetose, the antennæ with the first two joints glabrous; the prothorax has two lateral setæ on each side, the elytra are with or without a basal border, stria 8 usually joining 9 at a little distance behind the shoulder. The metacoxæ are contiguous, the apical ventral segment has a single seta on each side in the ♂, two setæ in the ♀, the protarsi ♂ usually with two dilated joints.

The four Indian genera should, if strictly treated, have been split up into two or, possibly, three subgroups, but there are only five species to be dealt with altogether, and it appeared unnecessary to adopt such an arrangement here.

Key to the Genera.

- 1 (6) Ligula with the two apical setæ arising in a single pore and appearing as one; tooth of mentum bifid; elytra with the striæ at least moderately impressed.
- 2 (5) Ligula truncate at apex; neck not or hardly constricted; elytra with a basal border; tarsal joints sulcate.
- 3 (4) Head not incrassate behind; antennæ filiform, not or only slightly dilated at apex; prothorax more or less cordate; form moderately wide, the elytra not more than a half longer than wide.... POGONUS, p. 308.
- 4 (3) Head incrassate behind; antennæ dilated and more or less moniliform at apex; prothorax quadrate; form very long and narrow, the elytra more than twice as long as wide SYRDEUS, p. 311.
- 5 (2) Ligula rounded at apex; neck deeply constricted; elytra without basal border; tarsal joints not sulcate DIPLOUS, p. 312.
- 6 (1) Ligula with the two apical setæ, though adjacent, separated from each other; tooth of mentum not bifid; elytra with only the sutural stria impressed..... LISSOPOGONUS, p. 314.

Genus POGONUS.

Pogonus Stephens, Ill. Brit. Ent. Mandib. i, 1828 (May), p. 106; Dejean, Spec. Gen. Col. iii, 1828 (Nov.), p. 6; Lacordaire, Gen. Col. i, 1854, p. 368; Chaudoir, Essai monographique sur les Pogonides, Ann. Soc. Ent. Belg. xiv, 1871, p. 23; Reitter, Best.-Tab. europ. Col. lxxv. 1908, p. 3.

TYPE, *Carabus chaldeus* Marsh. (Europe and Mediterranean region.)

Head convex, with deep, more or less parallel frontal sulci, neck not constricted, eyes large and prominent, placed at a little distance from the buccal fissure; labrum and clypeus both truncate or slightly emarginate in front, the former sexsetose, the latter bisetose, clypeal suture generally faint; mandibles short but fairly stout, with a slight tooth at middle; ligula fairly wide, truncate at apex, the apical angles sharp, two setæ at middle placed so closely together as to appear but one, paraglossæ small, free at apex, and extending a little beyond ligula; mentum emarginate, with a cleft tooth of variable length in the emargination, epilobes narrow, submentum with two setæ on each side; maxillæ with the outer lobe two-jointed, the inner one fringed within with bristles, hooked and very sharp at apex; palpi small, pointed at apex, the last two joints equal; antennæ rather short, joint 1 stout, equal in length to 3, 2 about two-thirds of 1, the rest about three-fourths of 1.

Prothorax convex, more or less cordate, the sides bordered.

Elytra moderately convex, subovate, sides practically without sinuation before apex, a basal border present, 9-striate, the striae more or less punctate, a scutellary stria present, stria 8 joining 9 behind the shoulder.

Sterna: prosternal process furrowed, glabrous; metasternal process with an angular border, fitting into an emargination of the mesosternum; metepisterna elongate. *Venter*: in the apical segment ♀ the inner pair of setae is placed at a little distance from the margin. *Legs*: tibiae and tarsi furnished with bristles, but the protibiae have only a few short spines on the outer margin near apex, tarsal joints glabrous on the upper side, unisulcate, joint 5 setulose beneath, claws smooth.

Range. India, palæarctic and nearctic regions, Africa, and Australia.

These insects live either on the sea-coast or, more frequently, inland on the shores of salt-water lakes or marshes.

The specimen described by Motschulsky under the name of *Pogonus hindustanus* (Bull. Mosc. 1864, ii, p. 192) is an example of *Abacetus placidulus* Walk.

Key to the Species.

- | | |
|--|---------------------------------|
| 1 (2) <i>Prothorax</i> gently rounded in front and slightly sinuate behind, the hind angles obtuse and hardly projecting laterally; elytra with nearly parallel sides; colour mainly dark æneous | <i>birói</i> , Csiki, p. 309. |
| 2 (1) <i>Prothorax</i> well rounded in front and strongly sinuate behind, the hind angles almost right and projecting laterally; elytra with rounded sides; colour mainly bright æneous | <i>micans</i> , Chaud., p. 310. |

490. *Pogonus birói*, Csiki. [Plate II, fig. 6.]

Pogonus birói Csiki *, Ann. Mus. Hung. 1907, p. 574; Andrewes, Rec. Ind. Mus. xxii, 1921, p. 341.

Pogonus bironis Seidlitz, Arch. Naturg. lxxiv, 1908, ii, 2, 1, p. 189.

Colour dark æneous, often with a greenish, bluish, or cupreous tinge; antennae, epipleura, and apex of elytra more or less ferruginous; palpi and legs flavous.

Head with fairly deep, nearly parallel, frontal furrows, extending on to clypeus in front and diverging a little behind, clypeal suture rather faint; antennae not extending far beyond base of elytra; surface impunctate. *Prothorax* convex, cordate, not quite a half wider than head, three-fourths wider than long, base bisinuate, its sides a little oblique, a fourth wider than apex, sides narrowly bordered, bisetose, rounded in front and gently sinuate close to the hind angles, which are fairly sharp though slightly obtuse and furnished

each with a carina; median line fine, deeper close to, though not quite reaching, base, basal foveæ short but moderately deep, basal area finely and closely punctate, the shallow front transverse impression finely and sparsely punctate. *Elytra* convex, subovate, though with nearly parallel sides, a fourth wider than prothorax, not quite two-fifths longer than wide, basal border entire, though irregular and sub-interrupted on each side at middle; punctate-striate, the striæ and punctures fairly deep on disk in front, much finer at sides and behind, 8 joining 9 at some distance behind shoulder, intervals nearly flat, 3 with four punctures (more rarely five), surface with some vague microscopic punctures. Micro-sculpture isodiametric, very distinct on the elytra, but less clearly visible on the head and prothorax. Last ventral segment ♀ with the inner pair of setæ somewhat removed from margin.

Length, 5.25–7 mm.

Distribution. BENGAL: Calcutta, Dakhindari, Salt Lakes (*B. N. Chopra*); Sundarbans (*F. W. Champion*); Sorabkatti (*Jenkins*). ORISSA: Balugaon (*N. Annandale*). BOMBAY: Bombay (*L. Bíró*); Kanara (*T. R. D. Bell*). MADRAS: Barkuda Island in Lake Chilka (*N. Annandale*); Malabar; Madras (*H. Chennappaiya*); Vizagapatam (*H. S. Rao*); Pamban (*B. N. Chopra* and *H. S. Rao*); Tuticorin, Pearl Bank Fisheries (*R. B. S. Sewell*). CEYLON: Hambantota (*T. B. Fletcher*). IRAK.

Type in the Hungarian National Museum.

An example in my collection is labelled "Burma," but I think this may be a mistake.

491. *Pogonus micans*, Chaud.

Pogonus micans Chaudoir, Bull. Mosc. 1842, ii, p. 820; id., Mon. p. 27; Reitter, Best.-Tab. europ. Col. lxxv, 1908, p. 10; Andrewes, Rec. Ind. Mus. xviii, 1919, p. 99; id., Ent. Mitt. 1927, p. 143.

Very similar to *birói* and of the same size, but somewhat greener and brighter in colour, though the microsculpture is similar. *Head* similar. *Prothorax* with the sides more strongly rounded in front and more sinuate behind, so that the hind angles are very nearly rectangular and project a little laterally, the front transverse impression with only traces of puncturation, basal area more evidently depressed and with rather coarser puncturation. *Elytra* with rounded sides, interval 3 with five dorsal pores (in all the examples examined).

Length, 5.5–6.5 mm.

Distribution. BALUCHISTAN-PERSIAN FRONTIER: Seistan, Labi Baring (*S. W. Kemp*). IRAK. PERSIA.

Type in Mr. René Oberthür's collection.

The species has not yet been met with in India, but so many insects found in the great sand belt extending from Morocco to Rajputana extend their habitat as far as Sind that it seemed desirable to include it here.

Genus **SYRDENUS.**

Syrdenus Chaudoir, Essai monographique sur le groupe des Pogonides, Ann. Soc. Ent. Belg. xiv, 1871, pp. 22 and 34; Reitter, Best.-Tab. europ. Col. lxxv, 1908, p. 5; Lutshnik, Ann. Mag. Nat. Hist. (10) xi, 1933, p. 689.

TYPE, *Pogonus filiformis* Dejean. (Mediterranean region.)

This genus agrees with *Pogonus* in the great majority of its characters, but differs altogether in facies, the form being long and narrow and the colour generally very pale. The head is incrassate behind, the last joint of the maxillary palpi slightly longer than the penultimate, the antennæ fairly stout, more or less dilated and moniliform at extremity. The prothorax is quadrate, not much contracted at extremities, though more so in front than behind, its sides only slightly rounded. The elytra are very long and narrow, with parallel sides, basal border entire, though lightly impressed near the scutellum.

Range. India, and the Red Sea and Mediterranean littorals. Apparently found only on the sea-coast.

492. *Syrdenus pallens*, sp. nov. [Plate II, fig 7.]

Colour flavous, sometimes a little darker beneath, the apex of the elytra very pale, the disk sometimes with a faint piceous cloud.

Head with rather shallow frontal furrows, diverging a little behind; mentum with the lobes strongly rounded, the epilobes narrow, forming a slight tooth on each side at apex, the tooth bifid but not deeply cleft, a good deal shorter than the lobes, a pair of setæ beneath it, submentum 4-setose, the inner pair of setæ much shorter than the outer pair; eyes very large and prominent; joints 7 to 10 of the antennæ only a third longer than wide; surface impunctate. **Prothorax** convex, a seventh wider than head, a fourth wider than long, base arcuate, its sides oblique, a fourth wider than apex, sides narrowly bordered, gently rounded on the front half, then straight to the base, hind angles somewhat obtuse though sharp, sometimes projecting slightly laterally, with a rudimentary carina, front seta at apical third, hind one on the angle; median line rather fine, not reaching extremities, basal foveæ short but moderately deep, hind transverse impression distinct though shallow, basal area slightly depressed, finely and vaguely punctate, with some slight longitudinal striation,

Elytra convex, very little wider than prothorax, rather more than twice as long as wide; 9-striate, the striæ finely and vaguely punctate, moderately impressed on the disk only, 1 and 5 reaching or nearly reaching apex, 2 to 4 terminating before apex, 6 and 7 much earlier, at which point 5 bends outwards, 8 rather deeper than the rest, joining 9 well behind shoulder; intervals nearly flat, 3 with four equally spaced pores, the two front ones adjoining stria 3, the two hind ones adjoining stria 2. Microsculpture isodiametric, fairly distinct on the elytra, barely visible on the head and prothorax. Last ventral segment ♀ as in *Pogonus birói*.

Length, 4.5-5.25 mm.

Distribution. SIND: Karachi (*T. R. D. Bell*).

Type in my collection.

Mr. Bell's note reads: "on tidal sand under wood."

Note.—In Bull. Mosc. 1878, ii, p. 80, Chaudoir writes: "I can see no difference between *Syrdenus fulvus* Baudi and a specimen coming from Bombay, which has been sent to me by Mr. de Castelnau." In his Monograph Chaudoir tells us that he could discover hardly any character to distinguish *S. fulvus* Baudi (Berl. Ent. Zeitschr. 1864, p. 206) from *S. grayi* Wollaston (Ann. Mag. Nat. Hist. (3) ix, 1862, p. 43), but Mr. V. Lutshnik (Ann. Mag. Nat. Hist. (10) xi, 1933, p. 690) says that the latter species may be distinguished by the presence of a minute seta on each side in the front angle of the prothorax, a character which I have confirmed by an examination of the type. It would appear that Chaudoir's specimen, alleged to come from Bombay, might be an example of *fulvus* or *grayi*, which are found on the shores of the Mediterranean and Red Sea, and in view of this uncertainty, and the fact that I have seen neither Chaudoir's nor any similar Indian example, it seemed best to exclude the species here. The coasts of India appear to have been little explored hitherto by entomologists, and probably much remains to be discovered when the sea-shores are more systematically examined.

Genus DIPLOUS.

Diploous Motschulsky, Käf. Russ. 1850, t. x; Chaudoir, Essai monographique sur le groupe des Pogonides, Ann. Soc. Ent. Belg. xiv, 1871, p. 49; Bates, Trans. Ent. Soc. Lond. 1873, p. 294.

Platidius Chaudoir, Ann. Soc. Ent. Belg. xiv, 1871, p. 51; Bates, Trans. Ent. Soc. Lond. 1873, p. 295.

TYPE, *Diploous sibiricus* Motschulsky. (Siberia.)

Head with deep, nearly parallel, frontal sulci, neck deeply constricted at a little distance behind eyes, which are moderately prominent and a little removed from the buccal fissure, the

hind supraorbital pore distant from eye, genæ fairly conspicuous; both labrum and clypeus faintly emarginate in front, the former sexsetose, the latter bisetose, clypeal suture very faint; mandibles fairly stout; ligula wide, rounded at apex, with two very closely placed setæ at the middle of the front margin, paraglossæ free at apex and extending a little beyond the ligula; mentum deeply emarginate, with a deeply cleft tooth in the emargination, submentum with a seta on each side; maxillæ with the outer lobe two-jointed, the inner one hooked at apex and provided with an inner row of bristles; palpi rather small, truncate at apex, the last two joints approximately equal; antennæ filiform, joint 1 stout, quite twice as long as 2, 3 a half longer than 1, the rest about equal in length to 1.

Prothorax cordate, moderately convex, the sides bordered.

Elytra rather flat, elongate-ovate, the sides with hardly a trace of sinuation before apex, no basal border, 9-striate, the striæ more or less punctate, a scutellary stria present, stria 8 joining 9 behind the shoulder.

Venter: in the apical segment ♀ the two setæ on each side are placed close together near the margin.

Legs: meso- and metatarsal joints carinate on the outer side, joint 4 deeply emarginate, claws smooth.

Range. Tibet, Siberia, Japan, North America.

These insects are found on the banks of streams and mountain torrents, sometimes at high altitudes. Nothing seems to be known of their life-history.

493. *Diplous nortoni*, Andr. [Plate II, fig. 8.]

Diplous nortoni Andrewes, Trans. Ent. Soc. Lond. 1930, pp. 4 and 14.

Colour black; apex of palpi ferruginous.

Head convex, with deep, uneven, frontal foveæ, diverging slightly behind and reaching a little beyond mid-eye level, clypeal suture obsolete, genæ oblique, a deep, faintly punctate constriction not very far behind eyes, which are only moderately prominent; mentum with a short bifid tooth; palpi slender; antennæ reaching basal third of elytra; surface smooth, a few faint striæ near eyes. *Prothorax* moderately convex, cordate, a fourth wider than head and nearly a third wider than long, base slightly emarginate at middle, apex truncate, sides with a fine reflexed border, well rounded in front, sinuate at a fifth from base, a seta on hind angle and another rather before middle, hind angles right and sharp; median line impressed at middle, front transverse impression rather slight, hind one a little deeper, basal foveæ small, deep and rounded, a little removed from both sides and base,

middle of base, lateral channels, and front transverse impression rather finely and lightly punctate, the punctures more densely placed around and in the basal foveæ, disk vaguely transversely striate. *Elytra* flat, elongate-ovate, and widest just behind middle, three-fourths wider than prothorax and as much longer than wide, sides very gently rounded, not sinuate before apex; punctate-striate, the punctures visible only on basal half of disk, the striae moderately impressed on disk, rather lightly at sides, 1 and 2 joining at base, 1, 5, and 8 all reaching apex; intervals somewhat convex on disk, nearly flat at sides, 3 with three equally spaced pores, adjoining stria 3, marginal series subinterrupted at middle, the pores very small. Microsculpture of the elytra formed by isodiametric meshes, the head and prothorax practically without any. *Sterna*: metepisterna and sides of sterna punctate. *Venter* with traces of puncturation only at sides of base.

Length, 9.5–11 mm.

Distribution. TIBET: Tashidzom, 14,500 feet (R. W. G. Hingston).

Type in the British Museum.

The species described above has not the facies of the circum-Mediterranean species, but its main characters are the same, though the neck constriction is placed rather further back.

Although *D. przewalskii* Sem. (Hor. Soc. Ent. Ross. xxiii, 1889, p. 356) is also found in Tibet, I have not introduced it here because Koko-nor, the only known locality, is so remote from the Indian region.

Genus LISSOPOGONUS.

Lissopogonus Andrewes, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 213.

TYPE, *Lissopogonus glabellus* Andr. (India.)

Body winged, glabrous.

Head with deep furrows, bounded on each side by a carina, neck moderately constricted at some distance behind eyes, which are only moderately prominent and not far removed from buccal fissure, the hind supraorbital pore placed far back, just outside the end of the lateral carina; labrum moderately emarginate, sexsetose, clypeus bisetose; mandibles stout, sharply hooked at apex, toothed at base; mentum with a short simple tooth, the lobes rounded outwardly at base and thence nearly straight to the slightly rounded apex, epilobes wide, forming a tooth on the inner margin of each lobe but not nearly reaching apex; ligula bisetose at apex, the two setæ, though adjacent, separated from each other, paraglossæ extending some little way beyond the ligula; maxillæ with the outer lobe two-jointed, inner one very sharp, fringed with bristles, and hooked at apex; maxillary palpi

glabrous, the apical a half longer than the penultimate joint, last two joints of the labials of equal length; antennæ stout.

Prothorax cordate, convex, the front lateral seta far forward, the hind one placed before the angle.

Elytra oval, convex, stria 1 more or less impressed, the other striæ obsolete, but 8 and a slight apical striole are visible close to apex, no scutellary striole, marginal channel with few and inconspicuous pores, no microsculpture.

Sterna: pro- and mesosterna deeply furrowed, metasternal process strongly bordered between the mesocoxæ. *Venter* with segments bordered and bisetose, apical segment ♀ with all four setæ placed near the margin. *Legs* rather short, tarsal joints short, glabrous above, not furrowed, joint 4 emarginate, ♂ protarsi with hardly dilated joints.

Range. India, Laos, Java.

Nothing is known regarding the biology.

494. *Lissopogonus glabellus*, Andr. [Plate II, fig. 4.]

Lissopogonus glabellus Andrewes, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 214; id., Ent. Month. Mag. 1926, p. 68.

Colour black, surface very shiny; joints 1 and 2 of antennæ, and a rounded apical spot on each elytron, covering approximately intervals 3 to 8, reddish; venter piceous; legs ferruginous, with the middle of femora and tibiæ sometimes piceous.

Head moderately convex, frontal furrows deep in front, parallel, genæ sloping very gently backwards, clypeal suture just visible, a fine ridge running back on each side from inner margin of eye, parallel with and terminating at the same level as the frontal ridge; surface smooth, finely punctate in the neck constriction, and with a few punctures on each side of front; palpi truncate at apex; antennæ reaching basal fourth of elytra, slightly dilated towards apex, joint 1 stout, twice as long as 2, 3 three times as long as 2, the rest as long as 1. *Prothorax* about a seventh wider than head and as much wider than long (not "much wider," as in the original description), sides of base slightly oblique, sides gently rounded, sinuate at about a sixth from base, hind angles sharply rectangular, projecting a little laterally, with a slight carina (as often in *Bembidion*); median line deep, very deep and wide at base (as in the *cameroni* group of *Bembidion*), basal sulcus deep, containing three large pores on each side, of which the outside pore is largest and extends to base, surface smooth and polished. *Elytra* five-sixths wider than prothorax, two-fifths longer than wide, border forming a slight angle at shoulder, basal border vague and irregular, with one or two large pores on each side; stria 1 shallow behind, deepening and curving outwards in front close to base, the other striæ

just visible under a strong lens as rows of minute punctures, a single dorsal pore on the site of interval 3 just before middle.

Length, 4.75–6 mm. ; *width*, 1.8–2.3 mm.

Distribution. UNITED PROVINCES : West Almora, Tanakpur, Haldwani, Sarda River Gorge, and Sarju Valley (all *H. G. Champion*) ; Kali Gad, Dobhalwala, and Song River (Dehra Dun), Arni Gad (Mussooree), and Lachiwala (Siwalik Hills) (all *M. Cameron*). BENGAL ; Gopaldhara, Namsoo (*H. Stevens*). SIKKIM : Birik, and Gielle Khola in the Tista Valley (*H. Stevens*). ASSAM : Rotung (*S. W. Kemp*). LAOS.

Type in my collection.

The examples from Laos are a little smaller and darker than the Indian specimens. Only one other species is known, viz., *L. pæcilus* Andr., from Java.

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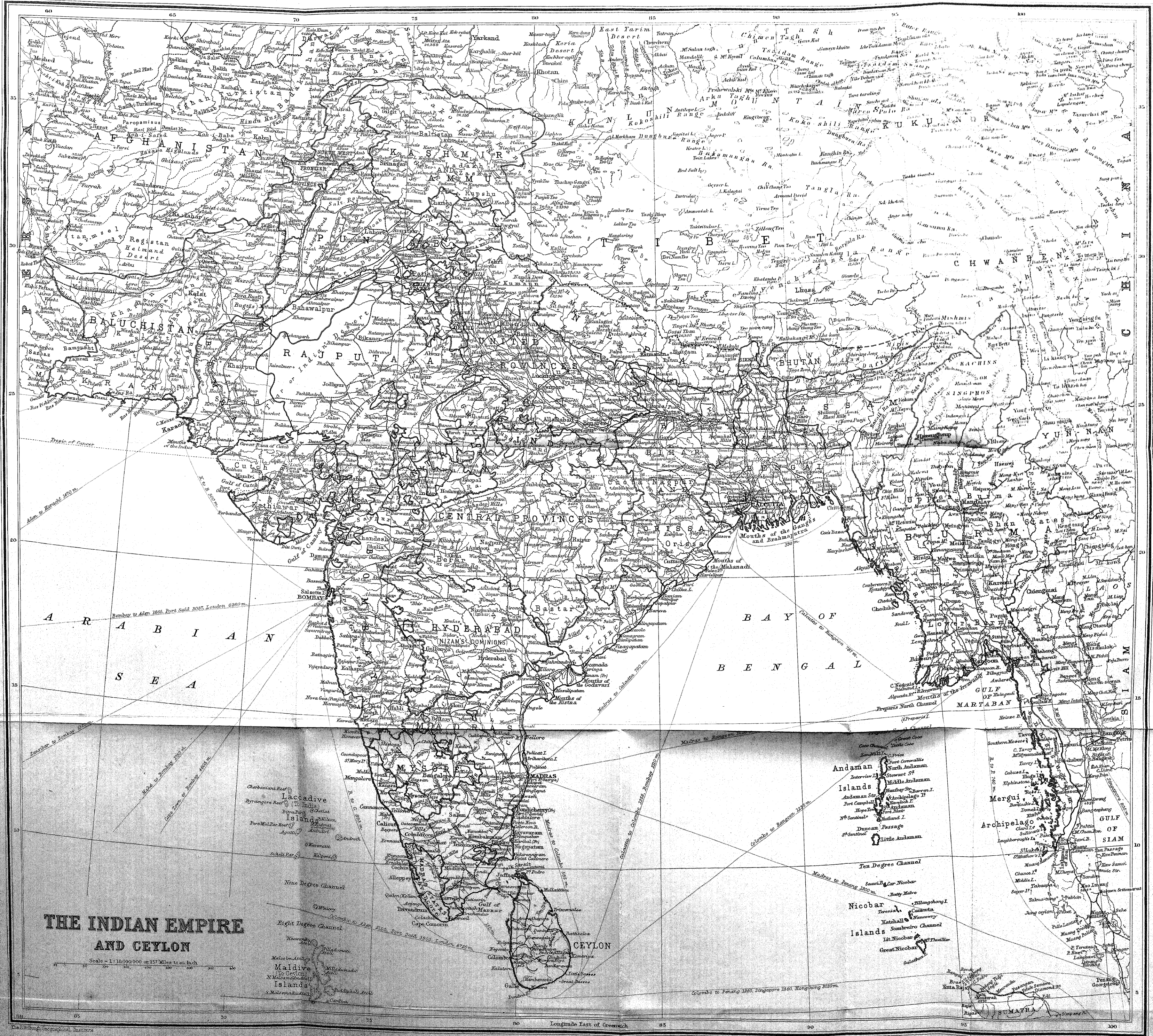
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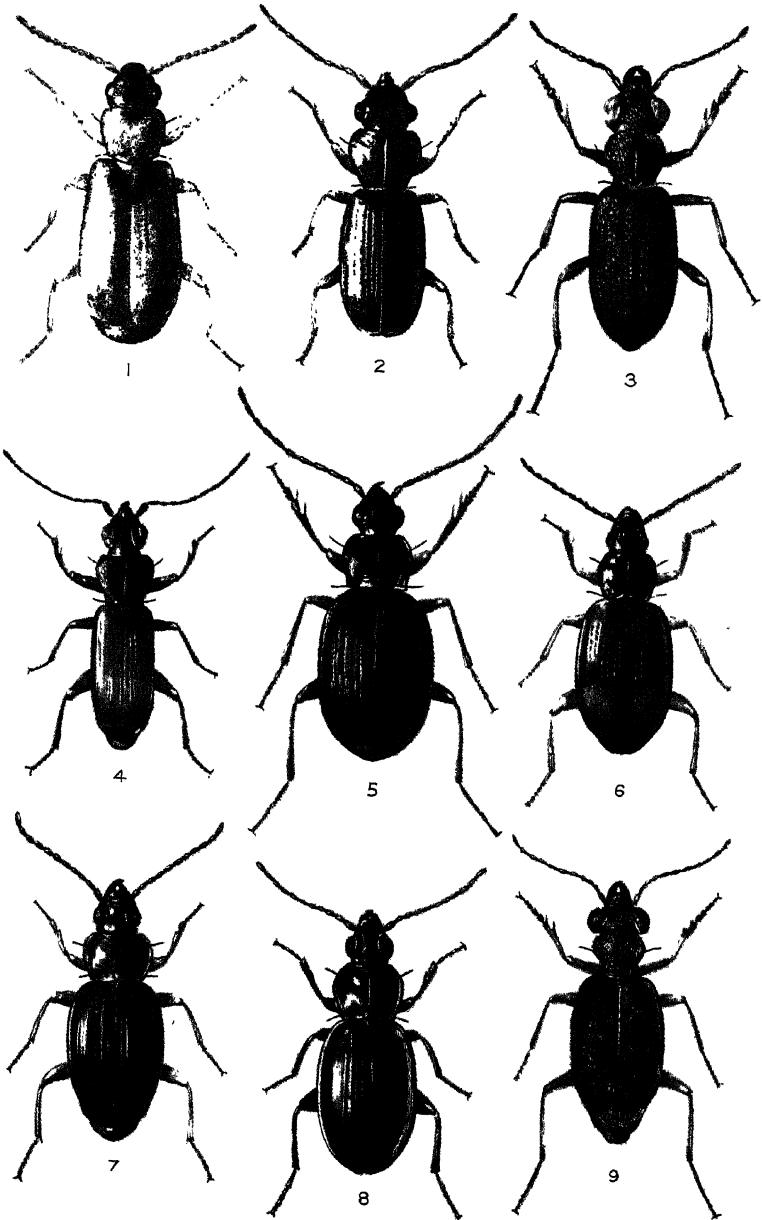


THE INDIAN EMPIRE AND CEYLON

Scale - 1:10,000,000 or 137 Miles to an Inch

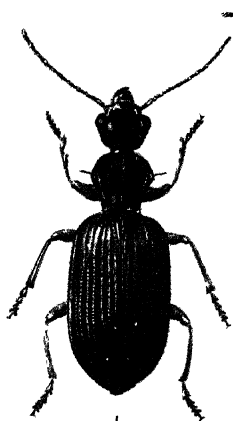
EXPLANATION OF PLATE I.

- Fig. 1. *Lymnastis pullulus* Motch.
2. *Perileptus birmanicus* Jeann.
3. *Asaphidion triste*, sp. nov.
4. *Perileptus microps*, sp. nov.
5. *Agonotrechus iris*, sp. nov.
6. *Tachys octostriatus* Net.
7. *Trechus beelsoni* Jeann.
8. „ *indicus* var. *macroderus* Jeann.
9. *Asaphidion formosum*, sp. nov.

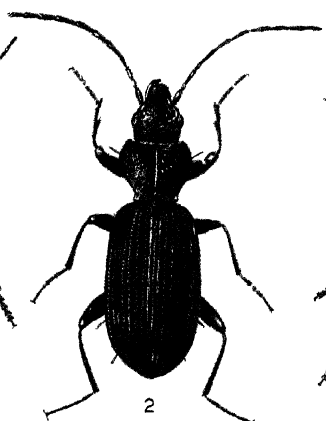


EXPLANATION OF PLATE II.

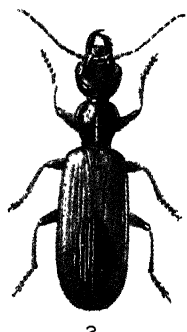
- Fig. 1. *Hexagonia terminata* Kirby.
2. *Melænus piger* Fabr.
3. *Hexagonia uninotata*, sp. nov.
4. *Lissopogonus glabellus* Andr.
5. *Brosocosoma ribbei* Putz.
6. *Pogonus birói* Csiki.
7. *Syrdenus pallens*, sp. nov.
8. *Diplous nortoni* Andr.
9. *Dinopelma leptaleum* Andr.



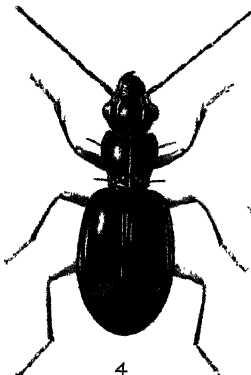
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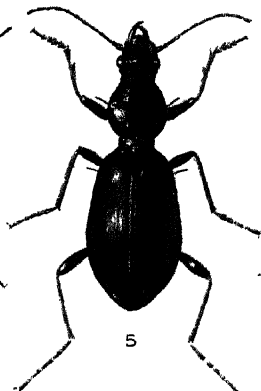
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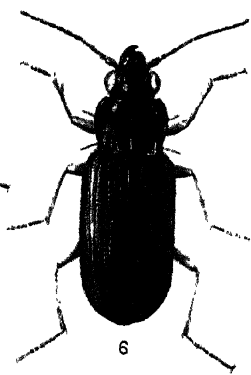
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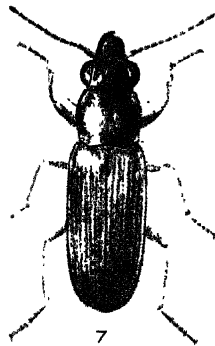
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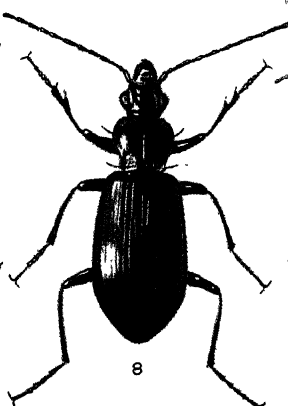
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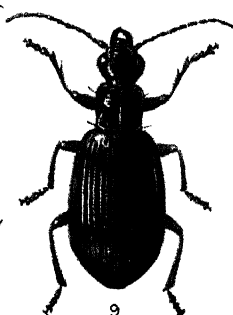
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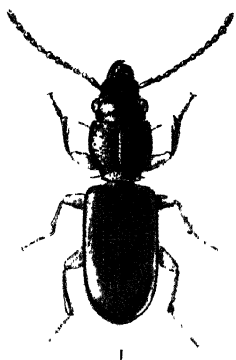


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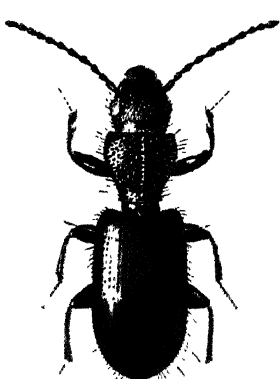
O.F.T

EXPLANATION OF PLATE III.

- Fig. 1. *Cymbionotum helferi* Chaud.
2. „ *minax*, sp. nov.
3. *Apotomus hirsutulus* Bates.
4. *Bembidion luniferum* Andr.
5. „ *loricatum* Andr.
6. „ *kara* Andr.
7. „ *compactum* Andr.
8. „ *regale* Andr.
9. „ *notatum* Andr.



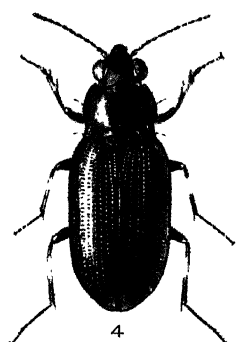
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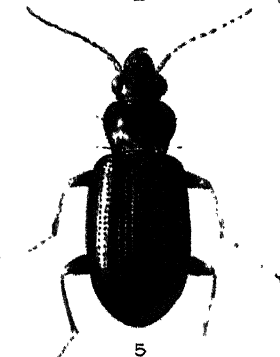
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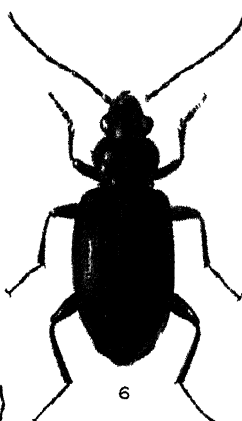
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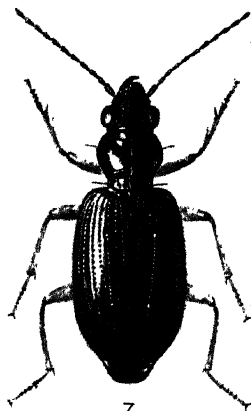
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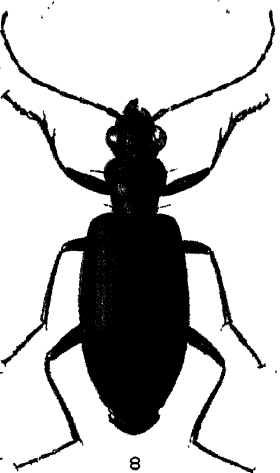
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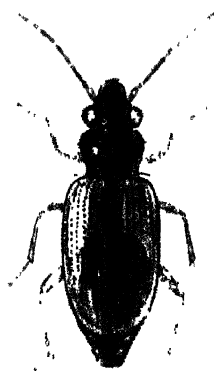
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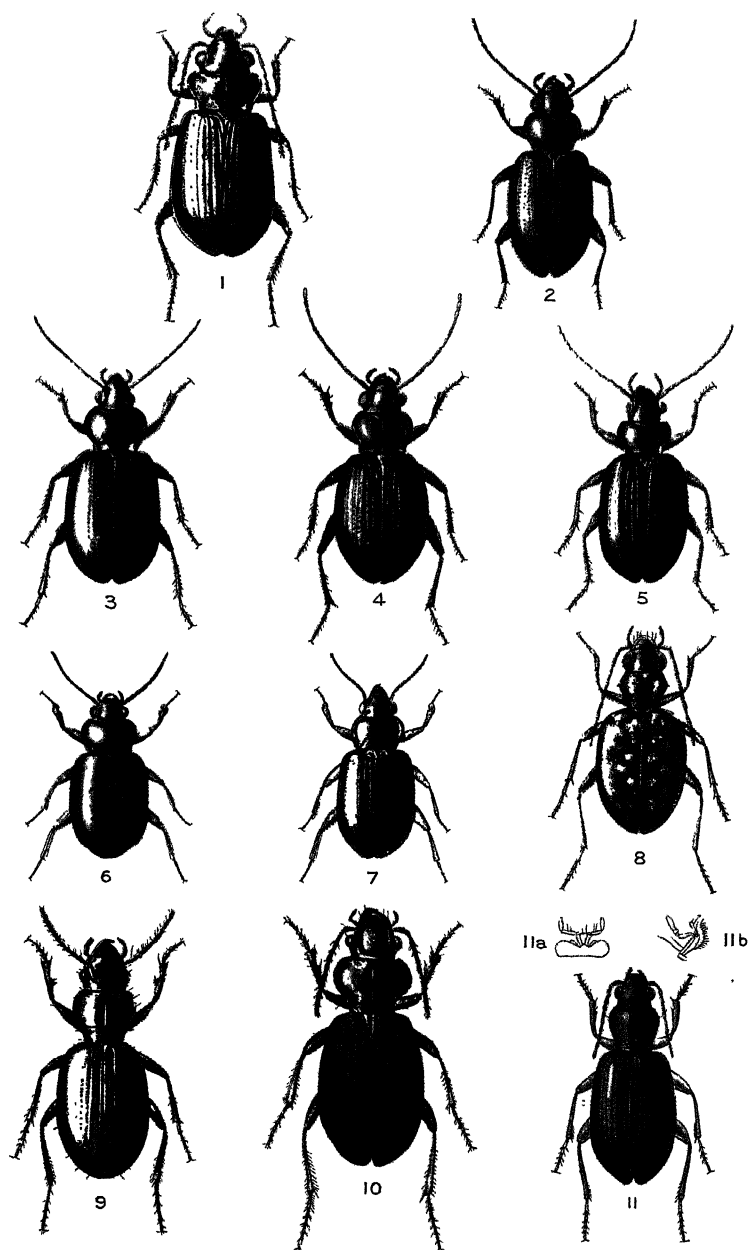
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EXPLANATION OF PLATE IV.

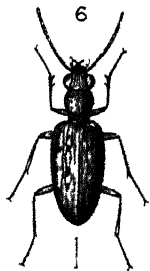
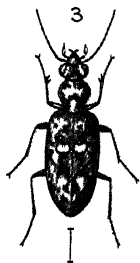
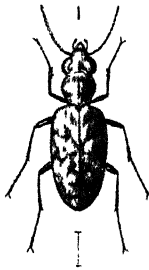
- Fig. 1. *Bembidion pluto* Andr.
2. „ *gagates* Andr.
3. „ *ladas* Andr.
4. „ *orinum* Andr. *
5. „ *babaulti* Andr.
6. *Tachys blandus* Andr.
7. „ *babaulti* Andr.
8. *Asaphidion championi* Andr.
9. *Chætobroschus anomalus* Chaud.
10. *Craspedonotus himalayanus* Sem.
11. *Axonya championi* Andr.
 a. Labium.
 b. Right maxilla (seen from below).

* Originally, by an inadvertence, this figure appeared as an illustration of *B. aquilum* Andr.



EXPLANATION OF PLATE V.

- Fig. 1. *Asaphidion obscurum* Andr.
2. „ *cuprascens* Andr.
3. „ *griseum* Andr.
4. „ *viride* Andr.
5. „ *indicum* Chaud.
6. „ *substriatum* Andr.
7. „ *ornatum* Andr.



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